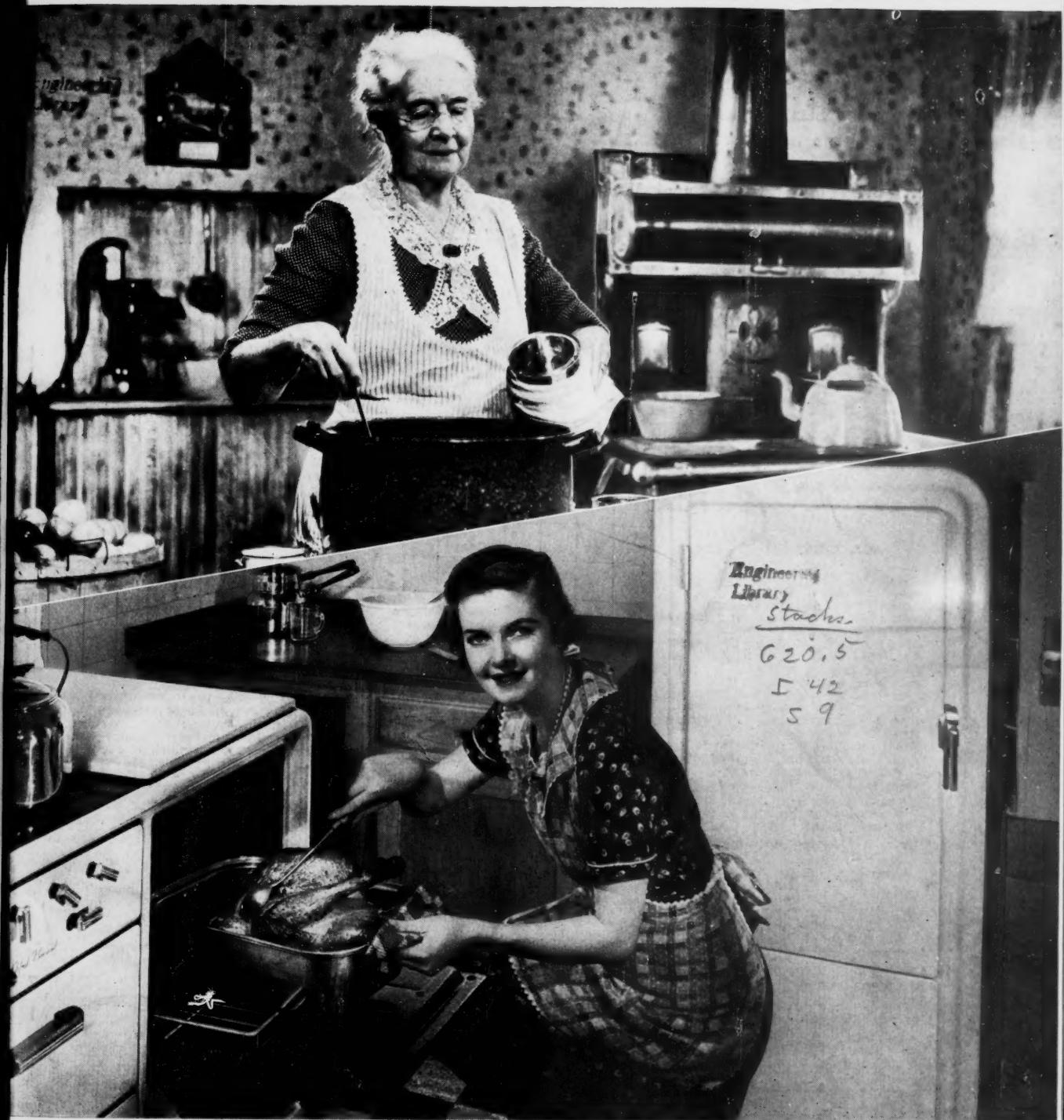


# Industrial Standardization

*and Commercial Standards Monthly*



January

See Article on Page 17

1026

**Front Cover:** Courtesy of Wheeling Steel Corporation and Consolidated Gas Company.

Barnum and Prentis New ASA Officers .....	1
Industry's Whole-Hearted Support of Standards Work Is Reported by Coonley .....	2
Annual Report of J. C. Irwin, Chairman, Standards Council .....	5
National Standards Will Help Reduce Traffic Toll. By Miller McClintock .....	8
I.C.C. Motor Carrier Bureau Is Interested in ASA Safety Work .....	15
Gas Stove Standards Contain Simple, Household Test Methods. By R. B. Harper .....	17
Wall Thicknesses for Pipe Outlined in New Standard .....	21
36 ASA Electrical Committees Report Year's Work on Standards .....	23

New British Building Ready for Fire Tests ..	12	British Reconsider Methods for Operating Committee Sets Program for World Power Conference .....	16
13	13	Railway Signals .....	19
Consumer Interest in Standards Is Increasing	13	Foreign Standards for Sale .....	19
Use of Traffic Signs Manual Would Help Street Safety .....	13	Canadian Standards Govern Sale of Electrical Equipment .....	20
Standards Spur Industrial Development .....	14	A.S.T.M. Considers Revising Petroleum Test Methods .....	20
Building Code Committee Starts Work .....	14	Soil Pipe Standard May Be Ordered .....	22
Standards Play Role in Distribution .....	16	Book Gives Consumers Guides to Quality .....	22
California Commission Bases Codes on American Standards .....	16	George Cameron Stone Dies .....	29
		Defines Standardization .....	29



## AMERICAN STANDARDS ASSOCIATION

### ASA MEMBER-BODIES

---

Am. Gas Association  
Am. Home Economics Assn.  
Am. Institute of Bolt, Nut & Rivet Mfrs.  
Am. Institute of Elec. Engineers  
Am. Iron & Steel Institute  
Am. Petroleum Institute  
Am. Soc. of Civil Engineers  
Am. Soc. of Mechanical Engineers  
Am. Soc. of Sanitary Engineering  
Am. Soc. for Testing Materials  
Am. Transit Association  
Assn. of American Railroads  
Assn. of Am. Steel Manufacturers Technical Committees  
Cast Iron Pipe Research Assn.  
Electric Light and Power Group:  
Assn. of Edison Illum. Cos.  
Edison Electric Institute  
Federal Housing Administration

Fire Protection Group:  
Associated Factory Mutual Fire Insurance Companies  
Nat. Bd. of Fire Underwriters  
Nat. Fire Protection Assn.  
Underwriters' Laboratories  
Institute of Radio Engineers  
Light Metals Group:  
Aluminum Company of America  
Mfrs. Standardization Soc. of the Valve and Fittings Industry  
Nat. Assn. of Master Plumbers  
Nat. Assn. of Mutual Casualty Companies  
Nat. Bureau of Casualty and Surety Underwriters  
Nat. Electrical Mfrs. Assn.  
Nat. Machine Tool Builders, Assn.  
Nat. Safety Council  
The Panama Canal  
Soc. of Automotive Engineers  
Telephone Group:  
Bell Telephone System  
U. S. Department of Agriculture

U. S. Department of Commerce  
U. S. Department of Interior  
U. S. Department of Labor  
U. S. Govt. Printing Office  
U. S. Navy Department  
U. S. War Department

### ASSOCIATE MEMBERS

---

Am. Automobile Association  
Am. Hospital Association  
Am. Water Works Association  
Brick Mfrs. Association of Am.  
Grinding Wheel Mfrs. Association  
Illum. Engineering Society  
Internat. Acetylene Association  
Library Group:  
Am. Library Association  
Mfg. Chemists Association  
Motor Truck Association of Am.  
Radio Mfrs. Association  
Soc. of Motion Picture Engineers  
U. S. Machine Screw Service Bur.

DANA D. BARNUM, President  
P. G. AGNEW, Secretary  
LESLIE PEAT, Editor

EDMUND A. PRENTIS, Vice-President  
CYRIL AINSWORTH, Assistant Secretary  
RUTH E. MASON, Assistant Editor

---

JANUARY  
1936

INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY  
is published by the American Standards Association, 29 West 39th Street,  
New York, with the cooperation of the National Bureau of Standards

Subscription price \$4.00 per year U. S. and Canada (foreign \$5.00); single copies 35 cents

Vol. 7  
No. 1



Blank-Stoller, Inc.

**Dana D. Barnum**



*Blackstone Studios*

## Edmund A. Prentis

Dana D. Barnum (left) President of the Consolidated Gas Company of Boston, who was elected president of the American Standards Association, succeeding Howard Coonley.

**Edmund A. Prentis (right) of the firm of Spencer, White & Prentis, Inc., consulting civil engineers, was elected vice-president, succeeding F. E. Moskovics.**

## Barnum and Prentis New ASA Officers

## **J. C. Irwin and F. M. Farmer Re-Elected as Chairman and Vice Chairman of Standards Council**

DANA D. BARNUM, president of the Consolidated Gas Company, Boston, Mass., was elected president of the American Standards Association at the Annual Meeting, December 11, at Hotel Astor, New York. Mr. Barnum succeeds Howard Coonley, president of the Walworth Company, manufacturers of pipe and pipe fittings, as head of the Association. Edmund A. Prentis, of the firm of Spencer, White & Prentis, Inc., was named vice-president, succeeding F. E. Moskovics, who, with Mr. Coonley, had served three years.

Mr. Barnum was elected to the Board of Directors in 1933, and has served as a member since then. A graduate of Stevens Institute, he began his career with E. W. Bliss & Company, Brooklyn, N. Y., then went to the Worcester Gas Light Company, which elected him president in 1915. He joined the Boston Consolidated in 1917, and was elected president in 1921. Mr. Barnum is a past-president of the American Gas Association, which nominated him for membership on the ASA Board of Directors.

J. C. Irwin, Boston & Albany Railroad, was re-elected chairman of Standards Council, and F. M. Farmer was re-elected vice-chairman. The former represents the Association of American Railroads on Standards Council, and the latter, who is vice-president of the Electrical Testing Laboratories, New York, represents the American Society for Testing Materials.

Nearly 100 members of Standards Council, the Board of Directors, and business leaders attended the annual meeting luncheon. Dr. Miller McClintock, Director of the Harvard Bureau of Traffic Research, and an eminent authority on highway safety, was the speaker of the day. His address is published in full, beginning on page 17.

Mr. Coonley's report as president was read by F. E. Moskovics, vice-president, in the former's absence from the country. Mr. Coonley pointed out that in 1935 the Association operated with a balanced budget for the first time in its history. Heretofore money from the "underwriters' fund" of 1929 has been used from year to year as needed to help defray expenses. This balanced budget,

he wrote, was industry's endorsement of the work of the Association.

J. C. Irwin reported on the work of Standards Council, of which he has been chairman for the past two years. The outstanding accomplishments of Standards Council during the past two years, he said, have been the definite steps taken in the organization of the work of the Association into departmental industrial divisions with the necessary supervisory committees to secure collaboration and avoid conflict or duplication.

The records show, he reported, that 45 new standards were approved during the past year, and that approval was given to 26 revisions of standards. The year's activity brings the total

number of approved standards to 323, and the total number of projects, including approved standards and projects under way, to 474.

He pointed out that the development of an increase in scope of work in the field of occupational diseases and the broadening of the Association's work in public safety codes had made this part of the national standards movement one of the most far-reaching influence. His report is published in full on page 5.

Following Mr. Irwin's report, Alexander Maxwell, chairman of the Committee on Reorganization, described in detail the new reorganization program.

Among the guests of the American Standards

## Industry's Whole-Hearted Standards Work Is Reaffirmed

### Retiring President of ASA Cites Balanced Budget as Endorsement by Business Leaders of Wide Program of American Standards Association<sup>1</sup>

I HAD counted a great deal upon being present at the Annual Meeting this year, which closes my third and last year as President of the American Standards Association. Circumstances have placed me in Hawaii today, but I am with you in spirit and in enthusiasm for the work you have been doing these many years in the national standards movement.

These three years have been critical years in our Association's history. The economic plight of industry, the shifts of policy which manufacturers and distributors have had to make under emergency legislation have all had their reverberations in our work. Whatever else may have been the outcome, however, it seems to me that industrial leaders have discovered the value of inter-

industry conferences on mutual problems. In this larger and wider aspect of management many business leaders have turned to the machinery of the American Standards Association for a forum in which to work out important mutual problems.

In entering upon my duties, I had three main objectives:

First, to bring into the Association important industrial groups that had not previously affiliated.

Second, to bring about closer and more effective cooperative relations with the Government.

Third, to strengthen the financial position of the Association sufficiently so that the officers and staff would not have to spend so much of their time and energies on the financial problem as to seriously interfere with their primary job, the actual operation of the organization.

### Eighteen New Groups Affiliated

In regard to the first of these problems, eighteen new groups have affiliated in the last three years, six as Member-Bodies and twelve as Associate-Members. Only two have resigned. With the affiliation of the American Petroleum Institute and the American Iron and Steel Institute the Association now contains organizations representing all of the heavy industries concerned with the work.

<sup>1</sup>Read by F. E. Moskovics, Vice-President of the American Standards Association, before the Annual Meeting, December 11, Hotel Astor, in Mr. Howard Coonley's absence.

Association at the Annual Meeting luncheon were the following:

Dr. Fritz Neuhaus, president, German standardization body, Berlin,

Mr. J. H. Ward, a personal representative of Mr. W. Averill Harriman, former member of the Industrial Advisory Board of the NRA.

Mr. William L. Batt, newly elected president of the American Society of Mechanical Engineers,

Mr. Arthur S. Tuttle, president of the American Society of Civil Engineers,

Mr. Ralph R. Teetor, president of the Society of Automotive Engineers,

Dr. C. H. Watson, president of the National Safety Council,

Mr. Frank L. Jones, vice-president of the Equitable Life Assurance Society of the U. S.

Mr. C. A. Musselman, president of the Chilton Company, business paper publishers,

Mr. Mason Britton, vice-president and general manager, McGraw-Hill Publishing Company,

Mr. Howard Coffin, former president of the Society of Automotive Engineers and a pioneer in standardization work in the automotive industry.

Mr. H. G. Tasker, president of the Society of Motion Picture Engineers.

Thus, the presidents of five of the fifty-two national organizations officially represented in the work of the Association as Member-Bodies and Associate-Members were present.

## e-Hearted Support Of Is Reported By Coonley

The closer and more effective cooperation of Government has been a distinct advantage to industry. Our Building Code Correlating Committee is continuing the fine work begun by the former Department of Commerce Building Code Committee. The Standards Council will take action upon a number of important recommendations of this committee this afternoon. The National Bureau of Standards is submitting to the Association a steadily increasing number of its Commerical Standards for approval as American Standards. The last edition of the American Standard screw threads is a culmination of earlier work done by the former National Screw Thread Commission, a federal agency. During the year the Federal Housing Commission has become a Member-Body, bringing the number of Government Departments as members of the Association to nine. The work of our Association could not be complete without this cooperation, which includes unexcelled technical services of the National Bureau of Standards and other federal bureaus.

### *Support Through Trade Associations*

The third problem has naturally been more difficult. To it our Directors have been devoting more time and energy than to any other problem.

In the past, about one-fourth of our income has come through dues of Member-Bodies, the remainder through Company Memberships.

Our most important accomplishment has been to bring about increased support from a number of industrial groups through their trade associations taking out what we call group memberships.

**Howard Coonley, retiring  
President of the ASA**





**F. E. Moskovics, retiring Vice-President of the ASA, who read Mr. Coonley's annual report**

Through this arrangement each company in the trade association becomes one of our Company Members and receives direct services from the central office. There are many advantages to this arrangement from the point of view of industry. The incidence of cost is proportioned throughout the entire group, making the cost to any one company less, and at the same time bringing each company into touch with the work, so that the advantages are widely distributed. This is strengthening the Association, in that it is extending a knowledge and an appreciation of the work. Such important groups as the electrical manufacturers, the railroads, electric power, machine-tool builders, and iron and steel are now supporting the movement in this way.

To bring about such an arrangement is not a simple matter. Correspondence and conferences are necessary to enlist the interest of a considerable number of executives and secure an understanding on their part of the significance to the industry of this work.

#### *Continued Response Gratifying*

Most of our present financial support, like our moral support, comes from groups and companies which have been actually benefitted by our work. The continued response of these groups and corporations has been most gratifying to those of us who have the job of balancing our operating budget, in spite of the economic difficulties that have been faced by practically every company in the United States.

We must also look for support to the potential beneficiaries of our work if the movement is to grow and be of wider service to industry. To a

large extent we have concentrated our membership program in this field during the past three years.

Financial support this year from these new groups, and renewed or increased support of our loyal members of longer standing, have brought us through this difficult period with the first balanced budget since the ASA was reorganized in 1928.

During the first five years of the depression it was necessary to use the remaining surplus from the underwriting fund to keep the work going. This, notwithstanding the fact that our permanent income has gone up a small amount each of these years.

Because of this vigorous demonstration of faith in our work and policies, I feel confident that we are marking today a new milestone in the history of the national standards movement. Not only can we cut the word "paid" in this milestone, but we can and will go on, confident in this firm endorsement of our work by industrial leaders as represented by 54 national associations and more than a thousand corporations now directly linked in the movement.

To any who may doubt what the coming years will have to say about standards and safety codes, this is a firm assurance of the value of the work of the American Standards Association. No flight of oratory can ever mean as much in endorsing our work as our ledger showing that the business men of America have paid cash to keep our machinery in operation.

#### *1936 to Reach New High Level*

Your Ways and Means Committee has been doing yeoman service in laying the foundation for similar wide support from additional industries. This all means that our 1936 membership and promotion program will be a full one. In the same way our technical work, which will be reported upon by Mr. Irwin, Chairman of the Standards Council, will reach a new high-level mark. In this fundamental preparatory work of the Ways and Means Committee program, which is educational in nature, the members of the Standards Council as well as the Directors are in a position to render important assistance. I bespeak your active cooperation.

The departmentalization of the work of the Standards Council has been made necessary by the growth of the work. Each major industrial field is in a position to work out its problems with a large degree of autonomy.

I want to say a word in regard to the increasing role which our magazine, *INDUSTRIAL STANDARDIZATION*, is playing. Its circulation is now more than 6,000. It is one of our most important means of keeping our members in touch with current activities.

Let  
deep g  
with r  
have b  
sound

A  
Ch

T  
zation  
partm  
superv  
and av

The  
mands  
for a  
in ma  
given  
indust  
increa  
zation

The  
with a  
scope  
about  
up in  
Chap  
Decem

As  
Admin  
Proce  
discus  
and th  
ASA  
meetin  
provid  
divisio  
commi  
mittee  
the el

Let me close my stewardship by expressing my deep gratitude to my associates who have believed with me in the intrinsic value of this work, and have backed up their belief with hard work and sound advice. Together we have reached the goal

of a balanced budget. In turning over the presidency of the American Standards Association to my successor, I want to assure him of my best wishes for a successful tenure. I shall always continue my interest in this work.

---

## Annual Report of J. C. Irwin, Chairman, Standards Council

THE outstanding accomplishments of the Standards Council during the past year have been the definite steps taken in the organization of the work of the Association into departmental industrial divisions with the necessary supervisory committees to secure collaboration and avoid conflict or duplication.

The plan was developed as a result of the demands of industry in constantly broadening fields for a common language and uniform requirements in matters of common interest, either within a given industry or in the relations between several industries, the dangers of overlapping activities increasing with the increased call for standardization, unless such a plan were adopted.

The necessity for studying our organization with a view to handling its work on a broader scope safely and systematically became apparent about two years ago and the subject was brought up in a preliminary way by Chairman Cloyd M. Chapman in his report at the annual meeting in December, 1933.

### **Plan for Divisional Committees**

As a result of the earnest study by the Joint Administrative Committee and the Committee on Procedure, a progress report was presented and discussed in the annual meeting December, 1934, and the "Plan of Organization of the Work of the ASA Standards Council" was presented at the meeting of the Council, April 25, 1935. This provided for the development of the work under divisional committees, some of which are industry committees, such as the Electrical Standards Committee which has been handling standardization in the electrical field for several years, and others

**Departmentalization and Vigorous Advances in Safety Code Work Are Signs of Sound Development in National Standards Work**

### **45 New Standards Approved During Year, Bringing Total to 323; These With Projects Under Way Total 474**

of which are inter-industry committees such as the Safety Code Correlating Committee, which also has been in operation several years, covering the field of safety codes.

At this meeting the Council approved the type of organization recommended and, at the same time, it authorized immediate organization in the Mechanical and Textile fields and also the organization of other such committees as rapidly as feasible, subject to the final approval by the Council, of the scope, organization, and personnel of these committees. The Council also approved the organization of a Building Code Correlating Committee.

In order that the divisional committees can be properly correlated and duplication of work avoided, the Council has acted wisely in setting up its Committee on Assignment of Work. This committee is composed of the chairman of the Board of Examination and the chairmen of all industry, correlating, and advisory committees. In making up the personnel this year, the vice-chairman of the Standards Council, who is also chairman of the Board of Examination, was appointed



**James C. Irwin, Chairman  
of Standards Council**

chairman of this Committee on Assignment of Work. With this organization, the proper functioning of this committee is assured.

The Building Code Correlating Committee has been organized with twenty-one member associations covering all interests concerned, which have appointed experts in their respective branches as their representatives, and with Rudolph P. Miller, representative of the American Society of Civil Engineers, former Building Commissioner of Manhattan, New York, as chairman, and George W. Thompson, representative of the National Bureau of Standards, Washington, D. C., and Chief of its Section of Building Codes, as vice-chairman.

The Mechanical Standards Committee is being organized with an initial membership of twenty member associations. The officers and an Executive Committee will be elected at its next meeting.

An Advisory Committee on the Standardization of Ultimate Consumer Goods, also authorized at the April meeting of the Council, is being organized. This plan of organization, further developed on the lines authorized, assures each industry of special attention in standardization in its particular field and, at the same time, it assures proper collaboration with other industries having a minor interest in a project as a whole but which may be of great importance to it in some particular phase.

#### **45 New Standards**

The activity of our sectional committees is indicated by a statistical summary of actions taken as a result of their work. The records show that from December 31, 1934, to December 1, 1935, 45 new standards were approved and that ap-

rovals were given to 26 revisions of standards. The year's activity brings the total number of approved standards to 323 and the total number of projects, including approved standards and projects under way, to 474.

The number of revisions of standards indicates that ASA Member-Bodies and their representatives on sectional committees are alive to the requirements of progress and that standards are kept up with the "state of the art" and are not dormant or frozen as has sometimes been feared by those not familiar with ASA procedure. However, it can not be pointed out too clearly, that revisions should be made only by the same agency that creates the standard and that chiseling from the outside causes a dropping back to the original chaotic condition, to remedy which, the standard was created.

Conspicuous among the revisions of standards of wide application are the American Standard on Screw Threads (B1.1-1935) which is fully described in the article by Ralph E. Flanders, chairman of the sectional committee, in the September, 1935, issue of *INDUSTRIAL STANDARDIZATION*, and the National Electrical Code (C1-1935), the importance of which is brought out in the article by A. R. Small, chairman, sectional committee, in the October, 1935, issue.

#### **Significant Safety Developments**

Two very important and significant developments have taken place during the past year in connection with one phase of the standardization work and they seem to me to warrant special mention in this report. Both of these developments are in the safety code activities.

The first is the broadening of the safety code work into the field of public safety. In past years, attention has been given almost entirely to the development of safety codes in the field of industrial safety although a number of codes, such as the Elevator Code, Building Exits Code, and others, have been developed in the public safety field. The increased attention which is being paid throughout the country to the prevention of accidents on streets and highways has brought questions to the ASA pertaining to the development of standards in this field. Several years ago the Code for Colors for Traffic Signals, which now forms the basis of the standard red, yellow, and green lights, used throughout the United States, was approved as an American Standard. During this year, the ASA has been called upon to approve the initiation of a new project covering the development of Standards for the Inspection of Motor Vehicles. A standard providing uniform control devices for streets and highways has been approved as American Standard. Another standard covering Specifications and Methods of Test

for Safety Glass has been submitted for approval. Undoubtedly the services of the ASA will be used in the future for broadening the standardization activities in this particular field of accident prevention work.

### **Occupational Diseases**

The second development in the safety code field, and probably the most important that has come to the ASA since the safety code program was started, relates to the field of occupational diseases. Several sectional committees are now developing standards on particular phases of this very troublesome problem. However, the action taken by the Standards Council in approving the appointment of a National Advisory Committee composed of the most outstanding experts in the occupational disease field, will undoubtedly result in the ASA performing conspicuous service for American industry. This Advisory Committee will, through extensive research and study, set up threshold limits for various toxic dusts, gases, and fumes for the use of the present sectional committees developing standards along these lines, and other committees which will be appointed in the future. Thus the standards developed in the occupational disease field will be based on up-to-date and authoritative information on this subject.

There have been other important developments in the standardization work with which Member-Bodies of the ASA are entirely familiar. I am glad, however, to have the opportunity to call to the attention of the full membership of the ASA, and to emphasize to all, these three very important developments:

1. Departmentalization of the work of the ASA;
2. Development of standards in the public safety field;
3. The initiation of a program covering standards in the field of occupational diseases.

### **ASA Recognized**

These developments are indicative of the recognition which industry, government, and the general public are giving to the value of ASA methods and procedures in arriving at solutions to the many economic problems which are now facing the nation.

In closing, I wish to advise all those who have any part or interest in the work of the Association, including alternates as well as representatives of Member-Bodies on the Standards Council and its sectional committees, to keep themselves informed, and thus to be prepared to inform others on the progress of standardization, through the communications sent to them and the thorough reading of the official ASA periodical, INDUSTRIAL STANDARDIZATION, and that alternates, as



**F. M. Farmer, Vice-Chairman of Standards Council**

well as principal representatives of Member-Bodies, appointed to the Standards Council attend its meetings whenever possible, for the education in procedure and to be prepared to act for or as principals as required.

We are fortunate in having a most able Secretary and capable staff to handle the many varied and often complicated matters that have to be kept in order and advanced on proper lines.

### **Henry Is Reelected President of A.A.A.**

The American Automobile Association, an Associate-Member of the American Standards Association, in its annual convention of directors and counselors in Chicago, reelected Thomas P. Henry, Detroit, to serve his 13th term as president.

Other officers elected to serve with Mr. Henry were:

First vice-president—Charles M. Hayes, president, Chicago Motor Club, Chicago.

Second vice-president—S. Edward Gable, president, Pennsylvania Motor Federation, Lancaster, Pa.

Third vice-president—Sam W. Burchiel, president, Automobile Club of Rhode Island, Providence, R. I.

Fourth vice-president—R. R. Reynolds, U. S. Senator and director of the Carolina Motor Club, Asheville, N. C.

Fifth vice-president—Frank E. Whittemore, president, Ohio State Automobile Association, Akron, Ohio.

Sixth vice-president—J. Mack Young, president, New York State Automobile Association, New York City, N. Y.

Seventh vice-president—Arthur H. Reed, president, California State Auto Association, Oakland, California.

Secretary—Charles F. Foley, past-president, New York State Auto Association, Lockport, N. Y.

Treasurer—George W. White, president, National Metropolitan Bank, Washington, D. C.

# National Standards Will Help

by  
**Miller McClintock**

*Director, Bureau for Street Traffic Research  
 Harvard University*

WITHOUT attempting technical exactness, the processes of standardization might be defined as the meeting of minds upon what constitutes suitable principles, both technical and operating, for the accomplishment of certain ends. Without the processes of standardization, it would be quite impossible for people to live and to work together. We would have a Tower of Babel, chaos.

The traffic problem affords an admirable example of the application of the principles of standardization to factors which range all the way from specific mechanical methods to questions of human behavior and conduct. It is a very personal problem for all of us and the development is taking place under our eyes daily.

In order that we may have a clear view of the degree to which the processes of standardization have been brought to bear upon our street and highway traffic problem, let us go back for an examination of the time when the first full force of the modern traffic situation became apparent. This may be placed at about the year 1920. Post-war inflation brought a very spectacular increase in automobile registration and use. The traffic problem, which had been recognized as of some slight importance theretofore suddenly loomed as a major social and economic problem. Since that time its importance has grown rather than lessened.

During the past eighteen months there has been a very vital revival of public interest and concern in street and highway traffic matters. This has been due largely to another rapid increase in automobile use and, therefore, in congestion, accidents, and deaths. When the traffic problem first became recognized, in the early twenties, as one

challenging the best efforts of the people for its solution, there was little or nothing to guide action. Each community and, one might almost say, each individual had his own panacea for relief. There was chaos. There were no accepted standards.

### *Sees Answer in Standardization*

When we began our traffic research work in Harvard University in 1921, it was our firm belief, and still is, that satisfactory traffic control can come only from the creation of sound standards. This does not mean that good-will on the part of the public is not an essential element—it is. On the other hand it cannot be emphasized too strongly that this good will or desire for relief, manifest in general sentiment or even in vigorous emotionalism, adds little or nothing to progress.

It should be very interesting for those of you who have devoted your professional career to various forms of standardization to review the progress which has been made in crystallizing operation principles and methods in the street and highway traffic field.

This progress may be discussed under three general headings. These subjects represent the three causal factors in traffic accidents and congestion. If each factor were perfect and accurately co-ordinated with each other factor we would have a solution of our problem. The three factors are: the *car*, the *driver*, and the *highway*.

### *Improvement in Safety Design*

It is appropriate to discuss the *car* first, because, of the three elements, it is the one which has shown the greatest advance toward standardization upon those material and design elements which are requisite for safe and efficient operation. Nineteen thirty six automotive production is almost as different from 1920 production as that production was different from the horse and buggy predecessor of the motor car.

This advance in safety and efficiency did not come by accident. It was achieved only by years

## Calls on Standardization To Solve Traffic Problems

# Reduce Traffic Toll

of painstaking research and the expenditure of millions of dollars. It has been made possible for the entire automotive industry, through a pooling of achievements, through the Automobile Manufacturers Association, the Society of Automotive Engineers, and the American Standards Association. It would be superfluous to describe to a gathering of this type the significant details of automobile improvements from the safety and efficiency viewpoint.

Some of these achievements are, however, so noteworthy as to demand at least mention. Brakes, which are perhaps the most important single safety element, have been immeasurably improved, not only through their ability to provide for rapid deceleration, but, likewise, because of the certainty of their operation and, perhaps more important, because of their ability to retain efficiency over long periods of operation with minimum maintenance. If there is any question in your mind as to the improvement in braking, I suggest that you try the experiment of driving a 1920 vehicle which has been maintained in good condition.

High standards for tire construction have resulted in the production of tires which are practically proof against dangerous blow-outs, during the normal period of their life, and this efficient life has been extended tenfold. Bodies have been so strengthened and improved in design that many accidents every day result in little or no injury to occupants who would assuredly have been killed in the earlier and more fragile type of vehicle. Not least among the effective elements of body design is the general introduction and use of safety glass. Your own association has a right to be proud of its contribution of the proposed "Specifications and Methods for Testing Safety Glass."

One might continue indefinitely with the enumeration of material and design improvements.

### Speed Is Problem

There is only one element which has been built into modern motor car production which many



Bachrach Photo

**Dr. Miller McClintock, Director, Bureau for Street Traffic Research, Harvard University, consultant to many cities and states, and advisor on traffic safety to the New York Police Department, sees in nation-wide standards a solution to the tragedy of motor accidents.**

*In his address before the Annual Meeting of the American Standards Association, Dr. McClintock outlined the many-phased problem of highway accidents. He is the foremost authority on the subject, and the author of more than twenty books on traffic control and traffic economies.*

*The Harvard Bureau is maintained through gifts from the Automobile Manufacturers Association.*

## Truck Drivers Praised As Gentlemen of Highways

**There was a time when one saw constant demonstrations of recklessness, selfishness, and courtesy from truck drivers.**

**Today that is almost entirely changed.**

**Commercial operators have achieved a set of operating standards which has lowered the accident rate of more progressive fleets, and has changed the public opinion toward truck drivers.**

**The movement toward more intelligent adult education for all drivers has hope.**

believe to be a potential hazard. That element is speed. It is the most controversial element in the traffic problem today. Any current production vehicle can safely make and maintain speeds in excess of sixty miles per hour under safe conditions. These high potential speeds are an essential part of the efficiency and, indeed, of the safety with which vehicles may be operated at lower cruising speed.

### Operator Failure a Danger

Unfortunately, safe conditions do not always exist and the failure or inability of an operator to judge his conditions accurately may convert an element of efficiency into one of destruction. This does not mean that any important part of the entire accident problem results from operations at or near maximum speeds. It merely means that any velocity inadequately controlled may be destructive. In fact, by far the great majority of our accidents result from operating speeds which would be considered very nominal under ordinary conditions.

There are, at the present time, two schools of thought regarding the control of speed. Each school is seeking to establish its beliefs as a "standard." One school believes that the proper approach is a mechanical limitation of maximum speeds by means of automatic devices. Without entering into the merits of this thesis, it may be said that the opposing school believes that such mechanical limitations could not have any perceptible effect upon the total accident problem, and that the proposal is a refusal to meet the issue fairly and solve it on constructive grounds which will achieve both safety and continued freedom for the development of the full efficiency of automotive transportation.

Despite the relative perfection with which automobiles are designed and constructed today, there is need for a more serious consideration of methods for the preservation of safety factors through reasonable maintenance. There is no piece of machinery, other perhaps than farm implements, so generally and consistently abused as is the motor car.

### Need Safety Inspection Standards

In our opinion this is due to no small extent to the fact that the American motorist has never been provided with an acceptable set of standards as to what constitutes safe mechanical conditions. It is also our belief that if such acceptable standards are provided, considerations of economy and self-preservation will cause the great bulk of American motorists to give reasonable adherence. It is for this reason that we look with great interest upon the present project of the American Standards Association to create "Standards for Safety Inspection of Motor Vehicles."

Let us now turn our attention to the second causal element in the traffic problem—the operator. Note how wide is the range of inquiry. It jumps from matters of technical and mechanical concern to those of a purely human and psychological character; surely this is a serious test for the processes of standardization. We may properly inquire what constitutes a good driver. At the risk of offering a definition of a subject which is perhaps already overly defined, one may say that a good driver is one who has mental and physical ability to mechanically operate his motor vehicle, who is sufficiently familiar with the rules of the road, so that he may perform his acts in accordance with established and anticipated conditions and, finally, one whose social attitude is such as to give him the will to protect himself and others.

### Problem of 40,000,000 Drivers

It is in the very vital human field of the driver that one meets the most serious problems in traffic standardization. In our view of the daily fatality records and in our reaction to the obviously bad driver whom one is sure to observe in any day's drive, we fail too often to recognize the tremendous advances which have been made in driving skill and in the general acceptance of proper road conventions. In a generation the great mass of the American public has been converted from walkers or riders in slow-moving vehicles to drivers and riders in automobiles. It is estimated that approximately forty million American citizens operate motor cars. As one looks at a busy traffic stream he must, if he is thoughtful, be pro-

foundly impressed by the amount of skill and forbearance which is demonstrated.

In no single part of the traffic movement is this situation more impressive than in connection with the commercial vehicle. The truck drivers have become the real gentlemen of the highway. There was a time when one saw constant demonstrations of recklessness, selfishness, and courtesy from truck drivers. Today that situation is almost entirely changed. Commercial operators have achieved a set of operating standards. This achievement is reflected in the lowered accident rate of the more progressive fleets and in the changed public opinion toward truck operators.

It is rather natural that commercial operators should lead the way, because their drivers are subject to a type of instruction and discipline which cannot be applied to the general public. The situation is, however, by no means hopeless. A more universal and intelligent application of drivers' license laws should result in a recognition of more serious responsibilities on the part of the average driver, and should afford a control whereby the decent citizen may be protected through the removal of those drivers who refuse to conform to reasonable standards of conduct. The movement toward more intelligent adult education holds some hope. Even more potent in our opinion, however, is the program now being carried on to teach intelligent driving in the secondary schools of the country.

For those individuals, fortunately few in number, who are unable or unwilling to adhere to reasonable standards, we must depend upon the punitive sanctions provided by law and law enforcement agencies.

### **Urge Uniform Rules**

There is one very powerful educational influence that has never been used to more than a fraction of its efficiency.

I refer to the national movement toward uniformity in traffic laws and regulations. The motor car has made a neighborhood of the nation. It is increasingly important that the basic responsibilities of motorists should be similar in the various political jurisdictions, similar not only in the letter of the law but, likewise, in the spirit of its application. Even in the absence of national uniformity, there should still be a much more vigorous and wide-spread dissemination of local ordinances and statutes.

I would be willing to hazard the guess that not one person in a hundred has read the motor vehicle laws of the state of New York, and that even fewer are familiar with the traffic regulations of the city of New York. Most of us have learned

### **Accident Solution Lies in Standards**

**The ultimate solution of the traffic problem must depend upon accurate analysis of causal relationships and upon the creation of standards which will permit the essential factors to work together in harmony.**

of our legal rights and responsibilities by casual observation of the acts of others or through word of mouth, frequently misinterpreted.

### **Roadway Is Factor**

Time precludes more than a superficial consideration of the more important elements in each of the phases of traffic standardization. Let us, therefore, turn our attention to the third causal factor, the roadway. Aside from the motor vehicle itself, it may be safe to assume that history has never demonstrated a more profound material change than has been evidenced by the construction of our national and state highway systems, within the memory of practically everyone here.

This accomplishment deserves a tribute to the road building pioneers of the nation, to the skill and initiative of the highway builders, both legislative and technical, and, not least, to the leadership and guidance of the United States Bureau of Public Roads, under the long direction of its chief, Thomas MacDonald.

Here one finds a very fertile field for the processes of standardization, both in the design, construction and equipment of the roadways for safe and orderly traffic movement. In any part of the United States one may today find examples of class "A" highways constructed with a degree of uniformity which is a very fundamental aid to the motorist. In addition, the driver will find throughout the country a very considerable adherence to basic standards regarding highway signs, signals, and markers.

### **Uniform Highway Signs**

This has been an immeasurable aid to safe operation. The American Association of Highway Officials, in cooperation with the United States Bureau of Public Roads, early led the way toward legible and uniform highway signs. The National Conference on Street and Highway Safety furthered the process of standardization for all types of traffic control devices. Your own association gave formal approval to these standards in its

"Manual of Uniform Traffic Control Devices for Streets and Highways," following and supplementing the "Safety Code for Colors for Traffic Signals," adopted in 1927.

### ***Infinite Variety Replaced by Standard***

Unless one can recall the almost infinite variety of traffic control devices used in the early twenties, it would be difficult for him to comprehend the advances which have been made. Stop-and-go signals of almost every size, type, and color have been replaced by standard elements which are now used almost universally.

Despite the achievements of the past in highway construction and equipment, one may look confidently to the future for further advances. In 1931 the Chicago City Council, under the leadership of the Hon. John A. Massen, undertook a definitive study of the causes of street accidents and congestion. Out of these comprehensive investigations, there came a concept of street design designated as the "limited way." This title is descriptive of physical limitations which the roadway design itself places upon the occurrence of certain types of conflicts causing accidents and confusion. This study was not important because it originated new ideas, but because it set forth the various elements as a related whole.

It proposed the elimination of *medial conflicts*, resulting in head-on and related collisions, by the physical separation of opposed streams of traffic.

It proposed the elimination of *marginal conflicts*, resulting in collisions with parked vehicles, pedestrians, and obstructions along the roadside, by the separation of the operating lanes of the roadway from service roadways, designed to give access to abutting property.

Finally, it proposed the reduction of *internal stream conflicts*, resulting in rear-end and similar types of collisions, through the protection of the operating lane from the slower movements of vehicles leaving or entering the limited-way.

A combination of these designs renders physically impossible more than 95 per cent of the accidents currently taking place and makes it possible for vehicular traffic to move at normal, open-roadway speeds, even in areas now highly congested.

### ***Limited-Way Idea Accepted***

The creation of the limited-way concept illustrates in a very graphic manner the processes of standardization. Within a very few years wide acceptance has been given to these principles, both in urban and rural construction. It

is entirely conceivable that these concepts and refinements which are inevitable in the future may eventually give us roadways so accurately adjusted to the requirements of modern automotive traffic that failures in the human elements may be rendered inconsequential.

The traffic problem is a complex of conflicts. There is no panacea by which it can be untangled. Its ultimate solution must depend upon accurate analysis of causal relationships and upon the creation of standards which will permit the essential factors to work together in harmony.

### **New British Building Is Now Ready For Fire Tests on Building Materials**

A new testing station, to study the degree to which different structures and building materials will resist the attack of fire for specified periods under conditions similar to those which would exist in actual building fires, has been completed not far from the center of London, England.

Tests to be conducted, and methods to be followed, will be in accordance with the British Standard Definitions for Fire Resistance, Incombustibility, and Non-Inflammability of Buildings, Materials, and Structures, Including Methods of Test (B.S.S. 476-1932). This standard was reviewed in 1934, according to the 1935 report of the British Standards Institution, and the Building Division of the Institution announced at that time that further consideration had been deferred until tests carried out in accordance with the provisions of the standard could be performed at the new testing station, which was then under construction.

Important work in testing sprinkler heads and valves, automatic fire alarms, and portable fire extinguishers, formerly done in Manchester, has been transferred to the new fire testing station.

In addition to the furnaces and mechanical testing equipment, a complete laboratory for research on chemical, physical, and electrical problems has also been provided.

Cooperative efforts to reduce the fire hazards from building materials and methods of construction in Great Britain, both those long established and those of more recent development, were proposed in 1930 by the Royal Institute of British Architects to the British Standards Institution.

Subsequently, groups representing technical and professional bodies, governmental agencies, insurance interests, and building trades cooperated in the research program from which the above standard was developed. In this investigation, the urgent need for a central testing agency

was brought out and the Fire Offices Committee, composed of British fire insurance companies, undertook to provide the necessary plant and equipment for a comprehensive study of the fire resistive qualities of materials and structures.

---

## American Committee Sets Program For Third World Power Conference

The program of the Third World Power Conference, to be held under the auspices of the American National Committee at Washington, September 7-12, 1936, has been prepared and a copy is now available in the American Standards Association Library.

"So much stress has heretofore been placed upon the purely technical side of power development," says the Foreword to the program, "and so large a part of the several programs has been devoted to this one phase of the subject that it seems desirable to change the emphasis at the Third World Power Conference and to devote its discussions to the more fundamental, and in many respects more important, problems of the relations of power resources, their development and use to the social and economic interests of the nation."

The International Commission on Large Dams will also hold its meetings at the same time and place as the Third World Power Conference.

The World Power Conference is a federation of national committees and representatives of some 50 countries, organized in 1924 "to consider how the sources of heat and power may be adjusted nationally and internationally."

The American Standards Association is co-operating on the newly re-organized American National Committee.

---

## Agricultural Bureau Finds Consumer Interest in Standards Is Increasing

Dr. A. G. Black, Chief of the Bureau of Agricultural Economics, in his annual report outlines the standards work done during the past year by his Bureau. Changes were made in standards for grade of cotton, he says, and new grain standards were put into effect. Progress was made in developing standards for livestock; there was an increase in the quantity of meat graded under bureau standards; and the work in wool standards and grading was improved.

One significant phase of the work has been the increased interest on the part of consumers and consumer organizations, Dr. Black said.

## Use of Traffic Signs Manual Would Help Street Safety

In the preparation of the Manual on Uniform Traffic Control Devices for Streets and Highways by members of the Joint Committee representing the National Conference on Street and Highway Safety and the American Association of State Highway Officials, the representatives of the Conference applied themselves particularly to traffic control devices for urban conditions. The manual on street traffic signs, signals, and markings originally prepared for the Conference by the American Engineering Council furnished an excellent foundation, but so rapid has been the development of the science of traffic control that thorough review and extensive revision was necessary.

One other principal function of the Conference representatives was to see that the Manual and the Uniform Vehicle Code and Model Traffic Ordinance, as revised in 1934, were in absolute harmony. The precise legal meaning of a sign, a signal, or a pavement marking is stated in the Code or Ordinance. The Manual specifications make the Code and Ordinance enforceable but do not encroach upon them.

The results of the work of the Joint Committee were reviewed by the Fourth National Conference on Street and Highway Safety representing a wide cross-section of viewpoints and experience in the traffic field. Certain changes were made in the Manual by the Conference before giving its final approval.

I am confident that the Manual represents the best that is now known in its field and that its universal adoption will make for safety and the orderly flow of traffic. The widespread demand for the pamphlet already in evidence encourages me to believe that it will be rapidly adopted as standard throughout the country.—A. B. Barber, Director, National Conference on Street and Highway Safety.

## Standardization Spurs Industrial Development, Chairman Iddles of A.S.M.E. Says

Standardization never ends, because standards must be kept in pace with developments, Alfred Iddles, new chairman of the Standards Committee of the American Society of Mechanical Engineers, told a luncheon meeting of chairmen and secretaries of the Society's standards committee on December 4. The luncheon was held in connection with the annual meeting of the A.S.M.E., New York.

"Our work in developing standards is a continuing task," Mr. Iddles, who is vice-president, United Engineers and Constructors, Inc., Philadelphia, said.

"The lay conception of a 'standard' is something that is finished and never to be revised or changed. This notion is the very antithesis of standardization work.

"Developments in the manufacturing arts, new inventions, modern design, and harnessing new scientific discoveries are the basis of industrial growth. Standardization seeks to aid development, not to hinder it. Standardization seeks to integrate the best practices throughout every industry.

"Because of the complexity of industry, we should keep in mind engineering management at every step. Moreover, it has been the experience of everyone interested in standards that the element of 'human engineering' is most important. Agreement of men in all industries concerned is of prime importance because a standard must be usable or it will not be used. And it is usable

only if all concerned believe it to be the best possible compromise of opinions."

C. W. Spicer, retiring chairman of the A.S.M.E. Standardization Committee, reported on the excellent work of committee chairmen, secretaries, and members.

"In spite of reduced travelling expenses and the inability of members of our committees to meet very often during the past few years, the work has approached our all-time record," he said.

### Standards Approved by ASA

Many important projects have been advanced, and ten mechanical standards were approved by the American Standards Association as American Standards during the year. Several more are being submitted for approval.

The mechanical standards developed under the leadership of the A.S.M.E., and approved by the ASA as American Standards during the calendar year of 1935 are:

Shafting and Stock Keys (revision)  
Screw Threads (revision)  
Jig Bushings  
Drawings and Drafting Room Practice  
Code for Pressure Piping  
Hose-Coupling Screw Threads  
Adjusted Pressure Ratings Steel Flanges  
Cast Iron Soil Pipe and Fittings  
Graphical Symbols  
Wrought Iron and Wrought Steel Pipe

## Building Code Committee Starts Work on Standards

Recognition of several reports and recommendations prepared by the former Building Code Committee of the U. S. Department of Commerce was decided upon by the Building Code Correlating Committee on November 20, 1935. These reports provide a basis of work for the BCCC and will also enable the committee to furnish information of immediate service to municipalities and others interested in building codes, pending further development of the work of the committee. Included in these reports are the following:

Minimum Live Loads Allowable for Use in Design of Buildings BH7  
Recommended Minimum Requirements for Plumbing BH13

Recommended Minimum Requirements for Fire Resistance in Buildings BH14  
Recommended Minimum Requirements for Small Dwelling Construction BH18 (supersedes BH1)

The committee gave careful attention to questions connected with the form and arrangement of building codes and also to the desirability of requesting the ASA to authorize sectional committees to develop detailed requirements for some other phases of building codes; these include administration, fire protection and fire resistance, chimneys and heating appliances, light and ventilation, and fire extinguishing equipment.

In order to give all members of the committee an opportunity to present their points of view, the committee agreed to submit these questions to letter ballot of the entire membership, and this canvass is now under way.

## I. C. C. Motor Carrier Bureau Is Interested in ASA Safety Work

**S**TANDARDIZATION and highway phases of the safety code program of the American Standards Association have attracted the attention of the new Bureau of Motor Carriers of the Interstate Commerce Commission, resulting in contacts being established with that bureau and an offer to them to use the facilities of the ASA in whatever way standardization in this field affects the work of the Bureau.

The new bureau, created by the last Congress, is under the supervision of Commissioner Joseph B. Eastman of the I.C.C. and Federal Coordinator of Transportation. John L. Rogers is director of the bureau, which was established to:

“. . . regulate transportation by motor carriers in such manner as to recognize and preserve the inherent advantage of, and foster the sound economic conditions in, such transportation and among such carriers in the public interest; . . . improve the relations between and coordinate the transportation by and regulation of motor carriers and other carriers . . .”

The act further gives the Commission authority to regulate the hours of labor, safety of vehicles, etc.

The long experience of the American Standards Association in developing standards and safety codes and the effectiveness of this work as attested to by wider use of these codes by the various state regulatory authorities throughout the country was discussed in a recent conference of members of the new Motor Carriers Bureau and a member of the ASA staff in Washington at the invitation of the I.C.C.

### ***Kelly Heads Safety Work***

The safety work of the bureau will be headed by Mr. H. H. Kelly, who has been appointed chief of the section of safety. He has been senior administrative officer of the Division of Highway Transport, U. S. Bureau of Public Roads, since 1931, in charge of safety and traffic surveys. George R. Wellington, former motor vehicle administrator of Rhode Island, will be assistant chief.

It is estimated that about 350,000 motor carrier buses and trucks will be brought under the regulations of the new I.C.C. Bureau. The Act also applies to interstate private truck carriers in respect to safety factors, “if need therefor is found.”

In an exclusive interview with INDUSTRIAL

STANDARDIZATION, Mr. Kelly pointed out that the Bureau would develop its safety work by using the known procedures of promoting safety. The experience of the states which have made most progress in reducing accidents, and that of the truck and bus associations which have been active in safety work, will be studied. Close coordination with the work of the National Safety Council, the American Association of Motor Vehicle Administrators, the National Bureau of Casualty and Surety Underwriters, the Society of Automotive Engineers, the Automobile Manufacturers Association, government departments, and other groups which have been at work on highway safety will be a part of the policy of the Bureau, he said.

### ***Will Use Work Already Done***

“There is an awakening of interest in motoring safety throughout the country, and the largest and best motor vehicle operators have gone far in their own company rules to enforce safety,” Mr. Kelly said.

“We want to use to the fullest possible extent the work done by and the experience of every competent group which has been studying the problem of mounting auto accidents and fatalities.

“The importance of correlating the many different regulations and traffic rules is appreciated by everyone interested in the safety movement,” he said.

An ASA project of wide importance to the motoring public, vehicle manufacturers, and public officials is being developed by the Sectional Committee on Standards for Safety Inspection of Motor Vehicles (D7). The project will cover safety standards for motor vehicle inspection, and will serve as a guide to motor vehicle administrators and other enforcement bodies which require periodic inspection of cars, buses, and trucks. The committee will consider safety advice to motorists as well as the mechanical requirements of component parts, such as brakes, lights, steering equipment, etc., in connection with inspections.

The proposed Specifications and Methods of Testing for Safety Glass (Z26) is now before the Association for approval as an American Standard.

Another project, which has a definite bearing on motor safety, is the Manual of Uniform Traffic Control Devices for Streets and Highways (D6) which was approved last month by the ASA.

The first project in the traffic field undertaken by the American Standards Association was the Safety Code for Colors for Traffic Signals (D3) which was approved as an American Standard by the Association in 1927. This has universal acceptance in this country and in many of the leading motoring countries of the world.

## Standards Play Big Role in Distribution

Well developed standards, which help to get potatoes, cotton, silk, tobacco, fruit, eggs, milk from farms into the hands of wholesale and retail merchants, without loss or confusion as to quality or weight, have become the backbone of our complicated wholesale distribution system, says Jeanette Eaton in her new book, *Behind the Show Window*.

The final stage of the distribution process, however, she points out, is carried on in a hit-or-miss fashion. No effective standards yet exist to complete the transaction from dealer to consumer.

Miss Eaton's book, written for young people, attempts to give the new generation, who will themselves soon be the buying public, a picture of the difficulties which now are met in making intelligent selection of any type of merchandise.

One hundred years ago, Miss Eaton points out, the industrial system, centered in homes or in strictly local industries, made it possible for the consumer to know intimately the details of his purchases.

Modern methods have removed the source of raw materials and manufacture so far from the local market, and science has brought about such complicated manufacturing processes and combinations of materials, that the present-day buyer finds it physically impossible to know enough about all the purchases he is called upon to make to select his goods intelligently.

At present, Miss Eaton says, consumers are not awake to their lack of knowledge.

As one step in the program intended to arouse the consuming public to a demand for more definite information, Miss Eaton outlines for young people the dramatic story of the complicated procedures through which their food and clothes must pass before arriving at their retail stores. Inevitably, the story comes around to the confusion and lack of knowledge which surround the consumers' purchases over the retail counter.

Miss Eaton considers the consumer an interested and influential part of our economic and political structure, and urges general recognition of his importance, as such.

"If Labor and Capital are represented at Washington, Consumers should also be represented,"

she says. "As a people, we are becoming convinced that industry and business must either work out fair methods and standards or that these will have to be imposed on them. As members of a democracy, we are getting the idea that when laws and regulations affecting the production and sale of goods are made, the consumer ought to have a chance to make his voice heard.

"We know we ought to support good workmanship and fair practice. But how are we going to be sure of what is good and fair? There is only one way. We have to find out where things come from, how they are made, transported, and sold."

*Behind the Show Window* is published by Harcourt, Brace & Company, New York, price \$2.50.

## California Commission Bases Codes on American Standards

American Standard safety codes will be used as the basis for safety regulations in California, according to the Industrial Accident Commission.

The Commission recently issued invitations to organizations interested in the preparation of safety regulations for mechanical power transmission apparatus to cooperate in formulating state safety rules for this type of equipment. The American Standard on this subject will be followed as far as possible in the formulation of these regulations.

Invitations are also being sent by the Commission to organizations interested in mine safety orders and mine fire control safety orders requesting them to appoint committees to revise the present regulations.

The committees working with the commission in the compilation of safety rules for boilers has completed its work of revision and public hearings were held recently in San Francisco and Los Angeles. The new revision will permit the construction and repair of boilers, under restrictions, by fusion welding.

## British Body Reconsiders Methods For Operating Railway Signals

Standards for railway signal equipment have progressed more rapidly in Great Britain than have the methods for installation and operation of this equipment, a recent statement before the British Institution of Railway Engineers points out.

The Institution, in cooperation with the British Standards Institution, has decided to re-examine the location of signals and their control from remote central positions.

# Gas Stove Standards Contain Simple, Household Test Methods

by  
**R. B. Harper<sup>1</sup>**

*Chairman, Sectional Committee on Approval and Installation Requirements for Gas-Burning Appliances*

## Cooky Dough and Toast Tests Are Combined with Technical Laboratory Methods to Determine Efficiency of Gas Appliance Design

**G**OOD, old-fashioned cooky dough is one of many means used to test the performance of gas ranges in accordance with newly revised American Standard requirements recently approved by the American Standards Association. Today's housewife can know that a new gas range will cook properly and efficiently, without depending upon the trial-and-error method or the statements of over-enthusiastic salesmen or advertisers, because standardization has given her standards of construction and performance, including methods of test, that she can readily understand.

Cooky baking to demonstrate satisfactory temperature distribution within a gas range oven is but one of hundreds of tests applied to all gas ranges approved by the American Gas Association Testing Laboratories in accordance with American Standards. Nevertheless, it illustrates the practical and thorough procedures that a great industry employs in safeguarding the interests of American housewives—it effectively illustrates the new method of applying consumer standards to industrial and public welfare.

The earliest gas ranges were little more than wood-burning or coal stoves converted to the use of gas. This was natural. Our early railroad coaches were designed to look like stage coaches; our first steamships were built along the general lines of sailing ships; our first automobiles looked like buggies and were known as "horseless carriages."

### Efficiency Essential

The most important job a stove has to do is to cook. If it is to be practical, it must be dur-

able and economical to buy and operate—it must broil, roast, bake, and cook foods quickly, conveniently, and with the least possible cost of fuel. Modern housewives want their stoves attractive. But this attractiveness of design must not result in more expensive operation and poor results in cooking. Even as her grandmother knew, she knows that good cooking is one of the most important jobs of home-making.

Ten years ago the American Gas Association established a laboratory to set up requirements for gas-burning equipment of all kinds, and to test equipment manufactured by various equipment manufacturers. A committee of the American Standards Association was formed with representatives of the American Home Economics Association, U. S. Bureau of Home Economics, National Bureau of Standards, U. S. Bureau of Mines, National Safety Council, insurance groups, gas equipment manufacturers, gas producing companies, and others, to develop the standards. In this way the ideas of the users, the manufacturers, and everyone interested were fully represented, as in all ASA work.

The resulting gas appliance requirements have been very successfully applied ever since and are minimum standards for performance, safe operation, and substantial and durable construction. Because they are minimum standards they do not restrict the developments of ingenious design, attractiveness, and general improvement. Manufacturers can improve the appliances as much as they please—but cannot let their products fall below the standards if they wish to continue to use the identifying Seal of Approval of the American Gas Association. When a housewife buys a gas-burning stove or other gas-burning equipment, she looks for the Seal. If it bears this emblem she knows that it complies with all

<sup>1</sup>Vice-president, The People's Gas Light & Coke Company; Chairman, A.G.A. Approval Requirements Committee.

## Suggests That Women Use Standard Test

Many women might well test their own ovens by the ASA standard baking test and determine whether or not the operation of the ovens might be improved so as to obtain better performance.—*Miss Alice Edwards, Secretary, American Home Economics Association, speaking on Consumer Standards during the Sixtieth Annual Convention of the American Gas Association, Atlantic City.*

of the requirements of the American Standards Association and the American Gas Association. She does not need to understand all of the technical details of the 50-page booklet of gas-stove requirements, but she can understand the sections

on testing the oven through cooky baking in the oven and toast making in the broiler.

The revised requirements for gas (Z21.1-1935) go into effect on and after January 1, 1936. These modernized requirements have been printed and distributed to all gas range manufacturing companies. Approval testing in accordance therewith will be begun by both the Cleveland and Los Angeles Testing Laboratories of the American Gas Association within a few weeks.

The new set of standards supersedes that of the same title which has been in effect since June 1, 1934, and constitutes the seventh edition of the gas range requirements which have been applied by the Laboratories since the American Gas Association appliance approval program was inaugurated ten years ago. The new standards include 19 new clauses and the revision of 74 others in some particular. The most significant changes involve: The addition of several important requirements covering appliance strength and rigidity under various types of loads applied at various points simulating service conditions; the

## Cooky Recipe Is Included In Standard Baking Test

### Sec. 19. Oven Heat Distribution

The heat distribution in the oven shall be so uniform that cookies distributed in the oven, heated to 375 degrees Fahrenheit, will be evenly browned in not more than 11 minutes.

Blackening of an entire bottom or top of any cooky shall be considered unsatisfactory.

#### Method of Test

The gas rate to the oven burner shall be adjusted at normal pressure to within plus or minus 5 per cent of the manufacturer's hourly Btu input rating as specified in Sec. 4. A thermometer or pyrometer shall be inserted in the center of the baking oven near the top. The oven shall be brought to a temperature of 375 degrees Fahrenheit and maintained at approximately that temperature.

Cooky dough which is at such a temperature (approximately 70 degrees Fahrenheit) that it will retain its form when placed on the cooky tins shall be used. Two strips of dough, each approximately 1 inch wide and 3 inches long, shall be placed, by means of a cooky press, about 2½ inches apart upon six 8½ by 5 inch by No. 30 gage dull sheet iron plates. These plates shall be thoroughly cleaned prior to the test. Three of these plates shall then be placed on each, the top and bottom racks in the following manner: On the top rack two

plates shall be placed at the rear of the range each adjacent to and with its long sides parallel to the oven sides; the other plate shall be placed at the front of the range with its long sides parallel to the front of the range; on the lower rack the plates shall be reversed with the plate having its long side parallel to the front of the range located at the rear.

A minimum clearance of 2 inches shall be allowed between the edges of the plates and the walls of the oven. Where the use of three plates results in undue crowding on the racks the arrangement and number of plates used shall be left to the discretion of the organization making the test. The cookies shall be baked for 11 minutes and then removed, the effect of their various locations in the oven being noted.

The recipe for cooky dough to be used in this test is as follows:

6 tablespoons fat  
 $\frac{3}{4}$  cup sugar  
 1 egg  
 $1\frac{1}{2}$  teaspoons milk  
 $\frac{1}{4}$  teaspoon salt  
 1 teaspoon baking powder  
 $\frac{1}{2}$  teaspoon vanilla  
 $1\frac{1}{2}$  cups flour

Cream the fat and add the sugar, creaming while adding. Add the well beaten egg and the milk. Then add the dry ingredients which have been sifted together. Finally add the vanilla.

inc  
 ter  
 str  
 sti  
 lat  
 so  
 lis  
 of  
 ap  
 nu  
 en  
 of  
 ing  
 93  
 dro  
 Un  
 A.  
 ab  
 and  
 few  
 du  
 pro  
 Sta

For  
 For

Si  
 bo  
 sta  
 Am  
 ord

Si  
 and  
 low  
 cou

T  
 stan  
 stan  
 car  
 ceiv  
 Ser

T  
 the

776.  
 777.

778.  
 779.  
 780.

inclusion of clauses specifying minimum broiler temperatures and heating speeds; increases in the stringency of top burner lighter performance stipulations; and a more or less extensive correlation of the standards covering gas range accessories with the corresponding American Standard listing requirements for such devices.

In all, some 529 stipulations are laid down, all of which must be met in future tests by A.G.A. approved gas range models. This is a greater number of clauses than has ever before been enforced. About 600 different new basic models of gas ranges are approved annually by the Testing Laboratories, with the result that upwards of 93 per cent, or more than one million eight hundred thousand, of the ranges sold per year in the United States and Canada bear the familiar A.G.A. Laboratory Seal of Approval. Remarkable improvements in general gas range design and performance have taken place in the past few years, this advancement undoubtedly being due in part to the American Gas Association approval plan. The new and up-to-date American Standards just published should aid significantly in urging even further this progressive trend.

—

## Foreign Standards For Sale by ASA

Standards approved by national standardizing bodies in other countries, as well as all American standards, are either filed in the Library of the American Standards Association, or may be ordered through the ASA office.

Standards recently approved in other countries and now filed in the ASA Library, are listed below. They are printed in the language of the country indicated.

The serial number shown with the title of each standard should be used when ordering foreign standards. To simplify ordering, address a postal card or letter, with the name of the person to receive the pamphlets and the Foreign Standard Serial Number, to:

American Standards Association,  
29 West 39th Street,  
New York.

These standards may also be borrowed from the American Standards Association Library.

### Holland

- 776. Rivets with countersunk heads for shipbuilding
- 777. Rivets with flat countersunk heads for constructional work and boilers
- 778. Rivets with pan head
- 779. Rivets with snap head
- 780. Mineral oils, viscosity determination

## Variety of Interests on Gas Appliance Committee

A wide variety of interests connected with gas appliances are represented on the Sectional Committee on Approval and Installation Requirements for Gas-Burning Appliances (A.G.A. Approval Requirements Committee). The members of the committee are:

**R. B. Harper, American Gas Association, Chairman**

**R. M. Conner, American Gas Association, Secretary**

American Gas Association, Manufacturers Section,  
C. S. Bagg, W. E. Derwent, B. B. Kahn, F. A.  
Lemke, H. W. O'Dowd, E. L. Payne, A. Stockstrom

American Gas Association, Operating Companies,  
E. L. Hall, R. B. Harper, W. S. Walker, H. E. G.  
Watson, L. B. Wilson, Jr., C. C. Winterstein

American Home Economics Association, Alice L.  
Edwards

American Institute of Architects

Associated Factory Mutual Fire Insurance Companies, A. L. Cobb

Heating, Piping and Air Conditioning Contractors  
National Association, Walter L. Fleischer,  
George P. Nachman (alt.)

National Association of Master Plumbers of U. S.,  
J. L. Murphy

National Safety Council, Alice L. Edwards, Curtis  
Billings (alt.)

U. S. Department of Agriculture, Bureau of Home  
Economics, Dr. Louise Stanley

U. S. Department of Commerce, National Bureau  
of Standards, E. R. Weaver

U. S. Department of Interior, Bureau of Mines,  
W. P. Yant

U. S. Treasury Department, Bureau of the Public  
Health Service, Dr. R. R. Sayers

- 781. Mineral oils, distillation test for light fractions (gasoline, kerosene), description apparatus
- 782. Mineral oils, distillation test for light fractions (gasoline, kerosene), test procedure

### Sweden

- 783. Test specifications for insulating compound for cable boxes
- 784. Test specifications for transformer oils
- 785. Electric traction motors
- 786. Belt speeds for agricultural machines and motors
- 787. Bottles of glass with crown ring for mineral and aerated waters

### Belgium

- 788. Photometric vocabulary
- 789. Rules for the construction of roofs and walls of corrugated, galvanized sheet iron
- 790. Standardization of pipes and tubes  
Purchase specifications for steel tubes
- 791. Steel tubes

### Great Britain

- 792. Distillation flasks
- 793. Interchangeable conical ground glass joints
- 794. Dibutyl phthalate

## Canadian Standards Govern Sale of Electrical Equipment

Twenty-one approval specifications, outlining the conditions which must be met by various types of equipment in order to secure approval for sale in Canada, have been approved under Part II of the Canadian Electrical Code and published by the Canadian Engineering Standards Association.

The use of unapproved electrical equipment is now illegal in all provinces of Canada which have officially adopted the Canadian Electrical Code. These provinces include Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and Nova Scotia.

The Code also has been adopted by the Hydro-Electric Power Commission of Ontario as its own "Rules and Regulations," taking the place of those formerly issued by the Commission itself.

Part I of the Canadian Electrical Code was completed in 1927, and has been revised twice, in 1930 and 1935. Part II on "Specifications" and Part III, "Rules for Outside Work" are now being prepared.

### Underwriters' Laboratories Recognized

Testing of electrical equipment is being carried on by the Hydro-Electric Power Commission of Ontario. The approval of Underwriters' Laboratories for electrical equipment manufactured in the United States is, however, recognized by the Canadian Electrical Code within the limitations imposed by the specifications which are being prepared under Part II of the Code.

At present, the National Research Council and the Hydro-Electric Power Commission of Ontario are preparing a plan of cooperation in the testing of equipment involving both non-electrical and electrical elements.

Following is the list of specifications for construction and test, already approved, with which all electrical equipment must comply before it will be approved under the Canadian Electrical Code:

- No. 0—1932. Definitions and General Requirements.
- No. 1—1932. Power-operated Radio Devices.
- No. 2—1933. Electric Signs.
- No. 3—1933. Electrical Equipment for Oil-burning Apparatus.
- No. 5—1934. Service-entrance and Branch Circuit-breakers.
- No. 6—1933. Electric Clocks.
- No. 7—1933. Portable Electric Displays and Incandescent-lamp Signs.
- No. 8—1934. Capacitors (Electrical Condensers).
- No. 9—1933. Electric Fixtures.

- No. 10—1933. Electric Floor Surfacing and Cleaning Machines.
- No. 11—1934. Fractional Horsepower Motors.
- No. 12—1934. Electric Portable Lighting Devices (Portable).
- No. 13—1935. Transformers for A—Luminous-tube signs, and B—Oil-burner Ignition Equipment.
- No. 14—1935. Industrial Control Equipment in Ordinary (i.e. non-hazardous) Locations.
- No. 16—1935. Insulated Conductors for Power-operated Radio Devices.
- No. 17—1935. Cable for Luminous-tube Signs and for Oil-burner Ignition Equipment.
- No. 18—1934. Outlet Boxes.
- No. 19—1935. Soldering Lugs.
- No. 20—1935. Motor-operated Blowers and Stokers.
- No. 21—1935. Cord Sets.
- No. 22—1935. Electrical Equipment for Measuring and Discharge Devices for Explosive or Flammable Liquids.

### Specifications Being Prepared

Other specifications which are now being prepared are listed below:

- No. 4. Enclosed Switches.
- No. 23. Oil Circuit-breakers.
- No. 24. Controllers for Small Motors.
- No. 25. Dust-tight Enclosures.
- No. 26. Auxiliary Gutters, Junction and Pull Boxes.
- No. 27. Wireways and Busways.
- No. 28. Asbestos Insulated Wire.
- No. 29. Panelboards.
- No. 30. Enclosed Branch Circuit Cutouts.
- No. 31. Switchboards.
- No. 32. Refrigerating Machines.
- No. 33. Cranes and Hoists.
- No. 34. Electrodes for Luminous Tube Signs.
- No. 35. Wires for low-voltage Control Circuits.
- No. 36. Hair-Dressing Appliances.
- No. 37. Christmas Tree Lighting Outfits.
- No. 39. Cutout Boxes.

### A.S.T.M. Considers Revisions In Two Petroleum Test Methods

In addition to the tentative revisions in several petroleum test methods noted in the November issue of INDUSTRIAL STANDARDIZATION, page 315, the American Society for Testing Materials announced that revisions are under consideration in Standard Method of Test for Distillation of Crude Petroleum (A.S.T.M. D 285-33; ASA Z11.32-1935) and in Standard Method of Test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometer (A.S.T.M. D 287-33; ASA Z11.31-1933). The first of these tentative revisions was offered to the Society in June, 1935, and the second in August, 1935.

Details of the proposed changes in text are given on pages 14 and 16 of A.S.T.M. Standards on Petroleum Products and Lubricants, a publication of the Society that includes the 1935 report of Committee D-2.

## Wall Thicknesses for Pipe Outlined in New Standard

An American Tentative Standard for Wrought-Iron and Wrought-Steel Pipe (B36.10-1935) was approved by the American Standards Association on November 22, 1935. It was developed by the ASA sectional committee (B36), under the joint leadership of the American Society of Mechanical Engineers and the American Society for Testing Materials.

Harold H. Morgan, District Manager, Robert W. Hunt Co., Chicago, is chairman of the committee and Sabin Crocker, Detroit Edison Company, Detroit, is secretary.

The new standard is based on a formula developed by the committee for its own guidance in setting up theoretical wall thicknesses for a wide

range of pressure-stress ratios ( $P/S$ ). This formula, which is not to be used for design, but was developed solely for the purpose of determining a rational set of pipe thicknesses reasonably consistent with the usual "basis-of-design" formulas, is a modification of the Barlow formula for pipe wall thickness, with a constant addition of 0.1 inch in thickness to compensate for threading and corrosion. This plan is similar to the one recommended in the A.S.M.E. Boiler Code, but in addition it includes an allowance for under-thickness mill variation of 12.5 per cent.

Analysis by this formula showed that up to 12 inches in size, common usage had largely centered on four schedules of wall thicknesses correspond-

### Representative Committee Prepares Pipe Standards

The committee, representative of all interested in the subject of wrought-iron and wrought-steel pipe, which prepared the new American Tentative Standard for Wrought-Iron and Wrought-Steel Pipe (B36.10-1935) is made up of the following members under the joint leadership of the American Society of Mechanical Engineers and the American Society for Testing Materials:

**Harold H. Morgan, American Society for Testing Materials, Chairman**

**Sabin Crocker, National District Heating Association, Secretary**

American Society of Mechanical Engineers, Herman C. Heaton, Arthur M. Houser, David S. Jacobus, Frank S. Clark (alt.), Henry B. Oatley  
American Society for Testing Materials, H. W. Maack, Harold H. Morgan, Frank N. Speller, George H. Woodroffe

American Boiler Manufacturers Association and Affiliated Industries, H. H. Murray

American Bureau of Shipping, Jacob Bergvall

American Gas Association, R. C. Cornish, S. C. Preston

American Institute of Refrigeration

American Marine Standards Committee, Henry C. E. Meyer

American Petroleum Institute, F. C. Fyke, Leslie D. Burritt (alt.), Henry Thomas

American Water Works Association, Frank N. Speller

Association of American Railroads—Engineering Division—Construction and Maintenance Section—Water Service, Fire Protection and Sanitation Committee, J. J. Laudig, W. B. Nissly (alt.)

Association of American Railroads, F. M. Waring

Association of American Steel Manufacturers Technical Committees, L. B. Grindlay, E. F. Kenney, G. A. Reinhardt, Jesse J. Shuman  
Electric Light and Power Group, Abbott L. Penniman, A. B. Morgan (alt.)

Federal Specifications Executive Committee, I. J. Fairchild

Heating, Piping and Air Conditioning Contractors National Association, W. R. Rhoton, Joseph C. Fitts (alt.)

Manufacturers Standardization Society of the Valve and Fittings Industry, F. Hugh Morehead

National District Heating Association, Sabin Crocker

National Electrical Manufacturers Association, H. C. Hodkinson

New England Water Works Association, C. W. Moury

Pittsburgh Testing Laboratory, A. R. Ellis

Power Piping Society, J. Roy Tanner, H. LeR. Whitney

Refrigerating Machinery Association, Waldemar R. Kremer, Alvin H. Baer (alt.)

Society of Naval Architects and Marine Engineers, H. C. E. Meyer

U. S. Department of Commerce—Bureau of Navigation and Steamboat Inspection, Dickerson N. Hoover, James W. Wilson (alt.)

U. S. Navy Department, Bureau of Construction and Repair

U. S. Navy Department, Bureau of Engineering, Design Division, Officer in Charge

U. S. War Department, Executive Officer

Members-at-Large, James B. Aston, Professor Albert E. White

## Building Code Committee Hailed as "Good News"

I welcome the opportunity to say a few words with reference to the good news about the organization of the American Standards Association Building Code Correlating Committee.

This is something worth-while and fills a long-felt need and a matter we, the Building Inspectors of New Jersey, for the past three years have been trying to accomplish for the State of New Jersey.

You are to be congratulated on the high type of the members of the committee and I wish you all success for a speedy accomplishment of the much-needed work.—E. I. Ackerman, President, New Jersey Building Inspector Association.

ing approximately to definite pressure-stress ratios which could be expressed as  $1000 \times P/S$  equaling 40, 80, 120, and 160. These schedules were projected for pipes larger than 12 inches and up to 30 inches. Wall thicknesses from current practice were then selected for the intermediate series equaling 60, 100, and 140. From the light wall O.D. sizes and from certain 8, 10, and 12 inch standard pipes used in large quantities, three additional schedules were set up for low pressures.

The formula was not applied to sizes smaller than 1 inch. However, dimensions and weights which have been traditional in commercial lists for "standard weight" and "extra strong" schedules have been retained in pipe sizes  $\frac{1}{2}$  inch to  $\frac{3}{4}$  inch, inclusive. For the convenience of the user of this standard a table of dimensions and weights corresponding to the old "double extra strong" pipe schedule, in nominal pipe sizes  $\frac{1}{2}$  inch to 8 inches, is included as Appendix A, which does not form part of the standard. Also, the terms "standard," "extra strong," and "double extra strong" in the old terminology have been discarded, for obvious reasons.

Table 1 of the standard lists specifications for pipe with the tensile strengths required and the corresponding uses for which each material is intended.

Table 2 gives the dimensions (nominal diameter and wall thickness) for welded and seamless steel pipe ranging in nominal size from  $\frac{1}{2}$  inch to 30 inch O.D., for schedule numbers

$1000 \times P/S$ , ranging from 10 to 160. Table 2 gives the nominal weights for these kinds of pipe.

Tables 4 and 5 give the corresponding data for welded wrought iron pipe with nominal diameters ranging from  $\frac{1}{2}$  inch to 20 in. O.D., and schedule numbers from 10 to 80, inclusive.

Copies of the new standard are available from the American Society of Mechanical Engineers, 29 West 39th Street, New York, or from the American Standards Association at 50 cents each.

Members of the American Standards Association are entitled to 20 per cent discount when ordering through the ASA office.

## Soil Pipe Standard Now May Be Ordered

The American Standard for Cast Iron Soil Pipe and Fittings (A40.1-1935), approval of which was announced on page 309 of INDUSTRIAL STANDARDIZATION, November, 1935, is now being printed and may be ordered from the office of the American Standards Association. It is expected that copies of the standard will be available by the first of February. The price is 65 cents.

ASA Members are asked to deduct their 20 per cent discount when sending checks for standards.

## Book Gives Consumers Guides to Quality

Detailed and practical information for judging the value of clothing, house furnishings, foods, and other items purchased by the consumer has been compiled by Ruth Brindze, chairman of the Consumers' Council, Westchester County, New York, and published under the title, *How to Spend Money*, (Vanguard Press, 100 Fifth Avenue, New York, \$2.00).

Miss Brindze not only tells what standards, grading, and labeling, if any, are used for the different consumer products she covers in her book, but she also tells how a purchaser can know whether she is really getting the quality she expects or not. The list of products covered in Miss Brindze's survey is an imposing one. It includes: Bathroom supplies; bed springs; blankets; canned goods; chinaware; dairy products; fish; gloves; ice cream; mattresses; meat; medicine; men's clothing; men's hosiery; men's shirts; men's underwear; pillows; pillow cases; sheets; shoes; silk, rayon, cotton; silverware; silk stockings; table linen; traveling bags; women's clothing; women's handbags; women's underwear.

Assistance was given Miss Brindze in her research on consumer standards and grade labeling by Mrs. Florence Fuller, Librarian of the American Standards Association, to whom Miss Brindze makes acknowledgment.

## 36 ASA Electrical Committees Report Year's Work on Standards

A N active year in development of the electrical standardization work under the American Standards Association is shown by the annual reports of 36 committees to the Electrical Standards Committee at its meeting, December 10.

These reports more than justify expectations for the development of ASA electrical standardization work which were held at the time the work was re-organized and the Electrical Standards Committee set up in 1931.

Immediately following its organization, the Electrical Standards Committee inaugurated a program whereby restricted projects covering a single type of apparatus were coordinated into projects of broad scope covering general types of apparatus.

The reports given below show that a standard covering five types of rotating electrical machinery is now before the American Standards Association for final approval. The Committee on Wires and Cables is making remarkable progress, and the Committees on Power Switchgear, Transformers, and Electrical Measuring Instruments are rounding their standards into final form.

One outstanding new project, on Radio-Electrical Coordination, which it is hoped will help to reduce "man-made" interference in radio reception, was reported approved, and organization of the committee started, during the past year.

The electrical sectional committees, in addition to their work in developing standards and standardization programs, have been active in furnishing information and advice to the United States National Committee of the International Electrotechnical Commission to be used in international conferences.

The organizations which have assumed the technical leadership in the work of the committees are listed following each of the committee reports given below. In cases where only the name of the chairman or secretary of the committee is listed, the Electrical Standards Committee itself has assumed sponsorship for the committee.

**New project on Radio-Electrical Coordination, Standards for Rotating Electrical Machinery, Power Switchgear, Transformers, and Electrical Measuring Instruments Mark Year's Developments**

**Assistance on International Standardization Problems Is Important Aspect of Committee's Work**

The committee reports, as presented to the Electrical Standards Committee, follow:

**National Electrical Code (C1-1935)**—The 1935 revised edition of the National Electrical Code was approved by the American Standards Association, and has been published. A discussion of the revised edition, prepared by A. R. Small, chairman of the committee, was published in *INDUSTRIAL STANDARDIZATION*, October, 1935, page 263.—*National Fire Protection Association*.

**National Electrical Safety Code (C2-1927)**—The current edition of the National Electrical Safety Code was approved by the American Standards Association in 1927. It will soon be necessary to prepare a revision of this Code, or at least to issue a supplement covering a few points where practice has so developed since the last revision as to call for changes in the detailed rules.

At the time the Code was approved, in 1927, arrangements were made for the railroads and the electric power companies to cooperate in preparing requirements for railway-power line crossing situations. In view of this, the committee completely stopped its work on the development of detailed specifications for crossing constructions.—*American Institute of Electrical Engineers, National Bureau of Standards*.

**Code for Protection Against Lightning (C5)**—This project consists of five parts. Parts

1 and 2 dealing with the protection of persons, buildings, and miscellaneous property were revised and the revision was approved in 1932. Part 3, dealing with the protection of structures containing inflammable liquids and gases, was not revised at that time but the original tentative standard was included with the first two parts in Handbook No. 17 of the National Bureau of Standards.

The National Fire Protection Association has a special committee which is attempting to arrive at detailed standards for the protection of oil tanks which will be satisfactory to all of the interests concerned, and the sectional committee is awaiting the result of this effort before attempting to revise Part 3.

Parts 4 and 5, on the protection of electrical apparatus and lines, were made the subject of a preliminary report by the sectional committee. Because of the intensive investigation, and the developments in this phase of the subject in the last few years, it seems probable that it will soon be possible for the committee to set up some definite standards in this field. The present information seems to be sufficient to determine what should be standard practice.

It is understood that the Association of American Railroads recently drew up a specification for the protection of communication lines which will be offered to the sectional committee for its consideration.—*American Institute of Electrical Engineers; National Bureau of Standards.*

**Terminal Markings for Electrical Apparatus (C6)**—A complete revision of the 1925 American Standard Connections and Markings of Terminals (C6-1925) was prepared and circulated to the members of the sectional committee for their comments during the past year. The comments received were considered at a meeting held April 25, 1935, at which time a recommendation was made that the standard be submitted to letter ballot. The vote is now practically completed and it is hoped will be reported to the ASA in the near future.—*National Electrical Manufacturers Association.*

**Insulated Wires and Cables (C8)**—Six of the eleven approved standard specifications under the jurisdiction of this committee have been revised during the past year, or are being revised. These are:

1. *Specifications for 30 Per Cent Rubber Insulation.*—This standard has been revised and the title changed to "Specifications for Class A, 30 Per Cent Rubber Insulation." A letter ballot of the sectional committee is now being taken.

2. *Specifications for Code Rubber Insulation.*—A letter ballot of the sectional committee is now being taken.

NOTE: In the course of obtaining the first ballot on these two revisions, additional changes were found to be advisable and a second ballot on "revised revisions" is therefore being taken.

3. *Three Specifications for Copper Magnet Wire.*—All

three specifications have been revised and the revised specifications have been submitted to the Electrical Standards Committee in accordance with the favorable letter ballot of the sectional committee.

4. *Specification for Impregnated Paper Insulation.*—It is expected that this revision which is being prepared by Technical Committee No. 5 will be submitted at the meeting of the sectional committee scheduled for early February, 1936.

One new standard, *Specifications for Cotton Braid for Insulated Wires and Cables (C8.12-1935)*, was approved as an American Standard during the past year.

Eight new standards have been proposed and action is now being taken on them as follows:

1. *Specifications for Tree Wire Coverings.*—This proposed standard has been approved by letter ballot of the sectional committee and has been submitted to the Electrical Standards Committee.

2. *Specifications for Metallic Coverings.*—This proposed standard has been prepared by Technical Committee No. 9 after much discussion resulting in a total of eight drafts. It will be submitted to the sectional committee at the meeting scheduled for early February, 1936.

3. *Specifications for Class AO, 30 Per Cent Rubber Insulation for Wire and Cable for General Purposes.*—This standard (making to date a total of three covering three classes of rubber insulation for wires and cables) is being balloted upon in the sectional committee.

4. *Weather-Resistant Wire, U.R.C. Type.*—A proposed standard for this class of wire has been under discussion in Technical Committee No. 12 for several months. It is expected that the cause of most of the controversy will have been disposed of and that a specification will be in the hands of the sectional committee on a letter ballot before the first of the year.

5. *Varnished Cambric Insulation.*—The work on this proposed standard has proceeded very slowly. The chairman of Technical Committee No. 6, which has this work in hand, reports that the standard was to have been ready for final ballot in his committee by about November 15, 1935. It will be several months before the standard will be ready for submittal to the Electrical Standards Committee.

6. *Concentric Copper Conductors.*—A proposed standard for concentric copper conductors involving, as the most important feature, a standard stranding table, is nearing completion and will probably be presented to the sectional committee at the coming meeting.

7. *Saturants.*—A specification is being developed by Technical Committee 8 for saturants for fibrous coverings of wire and cables. It is expected to be before the sectional committee at the coming meeting in February.

8. *Finishes.*—A specification is being developed by Technical Committee No. 8 for finishes for fibrous coverings of wires and cables. It is expected to be before the sectional committee at the coming meeting in February.

In addition to the above specific standards in various stages of completion, Technical Committee No. 4 is considering proposing a fourth standard for rubber insulation; namely, one for high voltages (over 5,000 volts).

The concrete results of the work of this committee to date are:

(a) Specifications approved as American Standard	12
Approved standards under revision	6
New specifications before sponsor	1

New specifications before sectional committee	1
New specifications in technical committee	6

Progress during the year in the completion of new standards has been slower than anticipated. However, several will be before the sectional committee soon and it is hoped that all of them will have been submitted to the sponsor before the next annual meeting. The principal work of the committee will then be keeping the standards up-to-date through revisions when necessary.

It was expected that a proposal to issue a *Book of Standards for Wires and Cables* would have been submitted to the sponsor before this but it seemed advisable not to proceed with that project until revisions of existing standards and the proposed new standards had been approved.—*F. M. Farmer, Chairman; F. W. Davidson, Secretary.*

**Symbols for Electrical Equipment of Building (C10)**—There have been no changes in the symbols for electrical equipment of buildings approved as American Tentative Standard in 1923. The Electrical Standards Committee will soon take up with the sponsors for this project the question of including it within the scope of the newly authorized Sectional Committee on Graphical Symbols in General (Z32).

**Hard-Drawn Aluminum Conductors (C11)**—No suggestions for a revision have been received since the approval of this American Standard in 1927.—*American Institute of Electrical Engineers.*

**Code for Electricity Meters (C12)**—This project has been inactive for a number of years and presumably a revision of the Code should be made to supersede the one issued under date of 1928. In view of the developments which have taken place since that time, however, it would seem to be desirable to reorganize the sectional committee. As a preliminary to this reorganization the question of sponsorship for the project may well be considered.—*National Bureau of Standards; ASA Electric Light and Power Group.*

**Tubular Steel Poles for Electric Line Construction (C13)**—This standard was approved in 1926 and no suggestions for its revision have been received.—*American Transit Association.*

**750-Volt Direct Suspension Overhead Trolley Contact Construction (C15)**—A revision of the 1923 standard was approved by the American Standards Association early this year.—*American Transit Association.*

**Radio (C16)**—There were held during 1935 five meetings of the technical committees operating under the Sectional Committee on Radio which were devoted partly or wholly to the preparation of material for submission as American Standard or Recommended Practice. As a result

## Electrical Standards Committee Heads ASA Electrical Program

The Electrical Standards Committee directs and acts as the coordinating agency for 36 committees working on electrical standardization projects under the American Standards Association. Eighteen members, representing 12 organizations, are on the committee.

These members, with three representatives of the American Society of Mechanical Engineers and a group of members-at-large, act as the United States National Committee of the International Electrotechnical Commission, which handles all problems arising in connection with international standardization of electrical equipment.

The members of the Electrical Standards Committee are:

**Charles Rufus Harte, American Transit Association, Chairman**

**Sidney Withington, Association of American Railroads, Vice-Chairman**

**J. W. McNair, American Standards Association, Secretary**

American Institute of Electrical Engineers, *A. M. MacCutcheon, Edward L. Moreland, Dr. H. S. Osborne (alt.), E. B. Paxton (alt.)*

American Society for Testing Materials, *F. M. Farmer, C. W. Warwick (alt.)*

ASA Electric Light and Power Group (Association of Edison Illuminating Companies; Edison Electric Institute), *Alexander Maxwell (alt.), H. B. Gear, R. H. Tapscott*

ASA Fire Protection Group (Associated Factory Mutual Fire Insurance Companies; National Board of Fire Underwriters; National Fire Protection Association; Underwriters' Laboratories), *A. R. Small, R. B. Shepard (alt.)*

ASA Communications Group (Bell Telephone System), *H. L. Huber, S. B. Graham (alt.)*

American Transit Association, *Charles Rufus Harte, W. J. Quinn (alt.)*

Association of American Railroads, *Sidney Withington*

Institute of Radio Engineers, *Ray H. Manson, Harold P. Westman (alt.)*

National Bureau of Standards, *E. C. Crittenden, Dr. J. Franklin Meyer (alt.)*

National Electrical Manufacturers Association, *L. F. Adams, T. E. Barnum (alt.), S. L. Nicholson, W. E. Sprackling (alt.), Frank Thornton, Jr., (alt.), E. D. Youmans*

U. S. Navy, *Chief, Specification Section, Design Division, Bureau of Engineering*

U. S. War Department, *Colonel Alvin C. Voris, Major Leon E. Ryder (alt.)*

## Committee Recommends More Than 5,000 Electrical Definitions

Eighteen subcommittees, working on definitions for terms used in as many different electrical fields, have recommended more than 5,000 standard definitions for electrical terms.

These definitions are now being correlated by the Committee on Definitions of Electrical Terms (C42).

of these meetings, proposals on the following subjects are being put in final form for balloting:

1. Frequency range of broadcast radio receivers
2. Oscillator interference range of superheterodyne broadcast radio receivers
3. Dimensions of adjustable resistance units
4. Color code for identifying fixed resistors
5. Safety precautions for radio transmitting equipment
6. Dimensions of terminal caps and of 4-, 5-, 6-, and 7-pin vacuum tube bases
7. Dimensions and ratings of radio panel lamps

It is expected that the material will be submitted to the ASA early in 1936 for final action.—*Institute of Radio Engineers*.

**Specifications for Dry Cells and Batteries (C18)**—Revision of these specifications is actively under way.

A proposed revision was completed in 1934, and was approved by a nearly unanimous vote of the sectional committee. Upon request of the National Electrical Manufacturers Association, however, the National Bureau of Standards, as sponsor, withheld a report to the American Standards Association, and returned the specifications to the committee for further consideration.

Because of the difficulties which had arisen in getting final approval for the 1934 revision, it seemed desirable to make sure that the personnel of the sectional committee adequately represented the various interests concerned with this work. Consequently an inquiry has been made for all organizations previously represented on the committee and an invitation has also been extended to the Electric Light and Power Group and to the American Gas Association to name representatives on account of the extensive use of flashlight batteries by their constituent companies. These two groups, however, have not found it desirable to have representation on the committee. The canvass of organizations has resulted in no important changes in the composition of the committee.

In preparation for a meeting of the full sectional committee a technical subcommittee appointed by the chairman met at Cleveland, November 19-20. This subcommittee decided that changes in the manufacture and application of dry cells warranted an extensive revision of the

proposed specification which was completed in the spring of 1934. Consequently, the subcommittee proceeded to the formulation of detailed proposals which will be submitted in a short time for consideration by the full sectional committee.—*U. S. Department of Commerce, National Bureau of Standards*.

## Industrial Control Apparatus (C19)

No new developments which would indicate a need for revising the standard have taken place since the publication of this standard in 1928.—*American Institute of Electric Engineers; National Electrical Manufacturers Association*.

## Electric Motor Frame Dimensions (C28)

—There have been no developments in connection with this project since the report contained in the January, 1932, issue of INDUSTRIAL STANDARDIZATION.—*American Society of Mechanical Engineers; National Electrical Manufacturers Association*.

## Insulators for Electric Power Lines (C29)

—The sectional committee working on this project held one meeting during the year, on February 27, at which time it was decided that a revision of the existing American Institute of Electrical Engineers Specification No. 41 on Insulator Tests should be undertaken and brought up to date for tests, test methods, and material requirements.

It was decided that this work should be done by four separate groups:

- Group 1. Pin Type Insulators (2 subdivisions)
- Group 2. Guy, Deadend (except suspension type) and Rack Insulators
- Group 3. Switch and Bus Insulators
- Group 4. Suspension Type Insulators

Each group is to consider the feasibility of standardizing dimensions, ratings, and classifications, and is to provide its standard with acceptance tests suitable for that particular class of material.

Soon after the meeting, the personnel for each of the four groups was named.

It was understood that one representative on Group 3 would be named from the Power Switch-gear sectional committee and arrangements have been made for this appointment.

Most of the subcommittees corresponding to Groups 1, 2, 3, and 4 have undertaken a study of their respective assignments, although no definite material has been submitted by any of these groups for consideration by the sectional committee.—*A. B. Campbell, Secretary*.

**Mercury Arc Rectifiers (C34)**—A report on proposed Standards for Acceptance Tests for Metal Tank Arc Rectifiers was published in June, 1934, by the American Institute of Electrical Engineers for suggestion and criticism. No further action has been taken.—*American Institute of Electrical Engineers*.

**Rotating Electrical Equipment for Railway Cars and Locomotives (C35)**—A draft has just been completed of "Proposed American Standards for Railway Motors and Other Rotating Electrical Machinery on Rail Cars and Locomotives," and has been sent by the sectional committee to the American Institute of Electrical Engineers, which is acting as sponsor for the work of the committee.

If the proposed standard is approved by the A.I.E.E. Standards Committee and Board of Directors, it will be submitted to the American Standards Association for approval as American Standard.—*American Institute of Electrical Engineers.*

**Power Switchgear (C37)**—Five standards are in course of preparation or are being reviewed by subcommittees of this sectional committee. These cover: Oil circuit breakers; large air circuit breakers; disconnecting switches and horn gap switches; high voltage fuses and associated current limiting resistors (above 750 volts); metal-clad switchgear.

A draft of the proposed standard for oil circuit breakers was discussed at the meeting of the committee, December 11, 1934, and was referred back to the Oil Circuit Breaker Subcommittee for revision. This revision is not yet complete, awaiting the final version of the revised American Institute of Electrical Engineers' Standard 19.

In an effort to expedite the work of the subcommittee on Switchgear of the Sectional Committee on Definitions of Electrical Terms (C42), our Definitions Subcommittee met with this subcommittee in New York on July 2nd. At that meeting, final agreement was reached on the text of all switchgear definitions except those relating to relays, which were later correlated with the work of the subcommittee on relays.

Our Oil Circuit Breaker Subcommittee was repeatedly consulted in connection with the preparation of comments on the International Electrotechnical Commission circuit breaker rating and performance specifications for presentation by the United States delegates at the IEC meetings held in Zurich, Berlin, and Brussels during 1935.—*H. R. Summerhayes, Chairman.*

**Electrical Measuring Instruments (C39)**—During the year this committee has prepared the second draft of a proposed American Standard for Indicating Instruments. The material in this proposed standard was derived from the American Institute of Electrical Engineers standards, the National Electrical Manufacturers Association standards, and the United States Navy standards. A meeting of the sectional committee is scheduled for February, 1936, to give final consideration to the proposed standard.—*E. J. Rutan, chairman.*

## Subcommittee Conducts Program To Test Bases

More than 59,000 lamp bases have been checked in research work done by a subcommittee preliminary to recommending standard gauges for assembled lamp bases and sockets. This subcommittee expects soon to present its recommendations to the Sectional Committee on Rolled Threads for Screw Shells of Electric Sockets and Lamp Bases (C44).

**Storage Batteries (C40)**—The American Standard on Storage Batteries was approved in 1928, and no suggestions have been received for revision since its approval.—*American Institute of Electrical Engineers.*

**Definitions of Electrical Terms (C42)**—Reports of all of the 18 subcommittees, proposing standard definitions of electrical terms, have been received.

It will now be necessary to edit and coordinate all subcommittee reports, covering a total of more than 5,000 definitions, index all definitions, and arrange for duplication of the complete report on all definitions of electrical terms to be submitted to letter ballot of the sectional committee.—*American Institute of Electrical Engineers.*

**Rolled Threads for Screw Shells of Electric Sockets and Lamp Bases (C44)**—The present American Standard covers threaded shells for lamp bases and sockets before assembly with other materials. Some members of the committee, however, were not entirely satisfied with the standard because it did not provide a means for gauging bases and sockets when completely assembled and consequently was not a complete standard for the articles purchased by the public.

As a result, a subcommittee was appointed to draw up a suitable proposal. Approximately 59,000 bases have been checked in gauges proposed by the committee but as yet the subcommittee has not been able to arrive at a satisfactory recommendation. However, the subcommittee expects that it will soon be able to review the whole work and present it to the sectional committee for consideration.—*American Society of Mechanical Engineers; National Electrical Manufacturers Association.*

**Electric Railway Control Apparatus (C48)**—No suggestions for revision of this standard have been submitted.—*American Institute of Electrical Engineers.*

**Rotating Electrical Machinery (C50)**—Revised standards for Rotating Electrical Machines, under consideration by the committee since its

formation, were completed and submitted to the Electrical Standards Committee September 19.

One meeting of the committee was held during the past year and recommendations for consideration at the meeting of the International Electrotechnical Commission last summer at Brussels and The Hague were prepared.

International Electrotechnical Commission proposals, and proposals for test codes, will be considered by the committee soon, it is expected.—*L. F. Adams, Chairman.*

**Electric Welding Apparatus (C52)**—No new developments have taken place since the publication of the standards for Electric Arc Welding Apparatus and Resistance Welding Apparatus in 1933.—*American Institute of Electrical Engineers; National Electrical Manufacturers Association.*

**Standards for Capacitors (C55)**—No requests for revision of the American Standard approved in 1934 have been received.—*American Institute of Electrical Engineers.*

**Transformers (C57)**—The sectional committee expects to have the following material ready for publication by the end of January, 1936:

Test Code for Transformers  
Guide for Operation of Transformers  
Standards covering:

Power Transformers  
Distribution Transformers  
Instrument Transformers  
Constant Current Transformers  
Induction and Step Voltage Regulators, and  
Current Limiting Reactors

The Test Code is now ready to be submitted to the sectional committee for final approval.—*V. M. Montsinger, Chairman.*

**Electrical Insulating Materials in General (C59)**—The committee recommended that the American Standards Association approve as American Tentative Standard the American Society for Testing Materials Method of Testing Electrical Porcelain (A.S.T.M. D 116-34). It expects to hold another meeting within the next few months.—*American Society for Testing Materials.*

**Vacuum Tubes for Industrial Purposes (C60)**—An organization meeting of this committee was held on May 29, 1935, at which officers were elected and a general discussion of the scope of the committee's activities took place.

This discussion seemed necessary because certain responsibilities of this committee seemed to overlap that of several other ASA committees, particularly those of Subcommittee 13-A—Electronics, operating under the Sectional Committee on Definitions of Electrical Terms, and the Technical Committee on Vacuum Tubes working under the Sectional Committee on Radio.

It was decided that any matters coming before this committee which seem to be within the scope

of other committees will either be cleared through these other committees or correlated with the action of these committees, depending on the nature of the subject.

Subcommittees representing the American Institute of Electrical Engineers, the National Electrical Manufacturers Association, the ASA Electric Light and Power Group, the Institute of Radio Engineers, the Radio Manufacturers Association, the National Bureau of Standards, and the Association of American Railroads were appointed to investigate and report what fields and subjects for standardization coming under the scope of this committee their respective societies favored.

Six of these subcommittees gave reports at the September 20 meeting of the committee, and plans were discussed for undertaking the various suggestions in order of their importance.

Inasmuch as various engineering societies have already considered many of the items suggested, a subcommittee consisting of Messrs. Pike (National Electrical Manufacturers Association), Shackleford (Institute of Radio Engineers), Kelley (American Institute of Electrical Engineers), and Warner (Radio Manufacturers Association), was appointed to review these standards and to propose to the committee those which they consider worthy of consideration for approval as American Standards.—*Dayton C. Ulrey, Chairman.*

**Electric and Magnetic Magnitudes and Units (C61)**—The organization meeting of this committee was held in 1935 and Dr. A. E. Kennelly was elected chairman and E. C. Crittenden of the National Bureau of Standards, vice-chairman. The principal work of the committee during the year has been to formulate opinions on matters for consideration by the Advisory Committee on Electric and Magnetic Magnitudes and Units for the International Electrotechnical Commission. A meeting of this committee was held during the past summer. The chairman of the committee has prepared a draft of a document which will record and make freely available all of the decisions which have been made by the IEC concerning electric and magnetic quantities. Those parts of the document which are considered applicable to American practice will be submitted for approval as American Standard.

A meeting of the committee will be held early in 1936 to consider this document and also to consider matters brought forward by the adoption by the IEC of the meter-kilogram-second (mks) system of practical units.—*J. W. McNair, Secretary.*

**Lightning Arresters (C62)**—This standard, which was recently submitted by the American Institute of Electrical Engineers, is now before the Standards Council for ballot on approval.—*American Institute of Electrical Engineers.*

**Radio-Electrical Coordination (C63)**—Organizations interested in radio-electrical coordination are now being invited to name representatives on the sectional committee. As soon as the membership of the committee is completed, the first meeting will be held.

Officers of the committee are: W. R. G. Baker, Radio Corporation of America, chairman; L. C. F. Horle, Consulting Engineer, vice-chairman; Virgil M. Graham, Hygrade Sylvania Corporation, secretary.—*Radio Manufacturers Association*.

**Specifications for Soft or Annealed Copper Wire (H4)**—These specifications were approved by the American Standards Association in 1928. No further work is being considered because no need for revision has been indicated.—*American Society for Testing Materials*.

**Specifications for Hard-Drawn Copper Wire (H14)**—It is expected that the revision in the Trolley Wire Specifications, tentatively adopted last June, may be adopted as standard next year.

Action may be taken on the tentative revision of the Bare Copper Cable Specifications adopted last June.—*American Society for Testing Materials*.

**Specifications for Medium Hard-Drawn**

**Copper Wire (H15)**—Progress is being made on the Specifications for Copper Cable for Transmission Line Purposes, and it is hoped that a report may be presented next June.—*American Society for Testing Materials*.

**Specifications for Wood Poles (O5)**—The American Tentative Standard Specifications for Wood Poles have now been in active operation for four years in the case of northern white cedar, western red cedar, chestnut and creosoted southern pine, and for two years in the case of Douglas fir and lodepole pine. Up to January 1, 1935, the American Standards Association had distributed 31,000 copies; and up to December 1 of this year the demand for the specifications has continued at the rate of more than 100 copies per month.

While experience with the new specifications has been sufficiently extensive to warrant minor revision and reissue as American Standards, it is felt that such action should be postponed until economic conditions have further improved, especially since the specifications are apparently functioning satisfactorily in tentative form. The application of the specifications has shown no reason for any changes in standard fiber stress values, or in the standard dimensions.—*ASA Telephone Group*.

## George Cameron Stone

George Cameron Stone, internationally known metallurgist, and first vice-chairman of the American Engineering Standards Committee (now the American Standards Association), died November 20, 1935, in his seventy-seventh year.

Mr. Stone was associated with the New Jersey Zinc Company from 1882 to 1929, and was chief metallurgist of that company. He retired in 1929.

Eight important metallurgical patents were held by him: two for the manufacture of sulphuric acid, two on gas filtration, and separation, and one each on zinc and lead extraction from ores, a new form of jig, a gas producer and flotation apparatus.

Mr. Stone had an international reputation as an authority on armor, and had one of the finest private collections of arms and armor in the world. He carried on special research on the history of metallurgy in connection with the history of armor.

Mr. Stone was a member of the committee which organized the American Engineering Standards Committee (re-organized in 1928 as the American Standards Association) and was one of the original members as well as the first vice-chairman of the AESC.

He was also active in the technical work of

the Association, having been chairman of one of the committees on zinc and zinc ores.

In February of this year he received the James Douglas Gold Medal at the annual meeting of the American Institute of Mining and Metallurgical Engineers "for distinguished achievement in non-ferrous metallurgy."

Mr. Stone had been active for many years in the American Society for Testing Materials and the American Institute of Mining and Metallurgical Engineers, representing the latter organization in his AESC work.

## Defines Standardization As Term for Marketing

Standardization involves (1) the determination of basic limits or grades and (2) the establishment of model processes and methods of producing, handling, and selling goods and services. These basic limits or grades determine the specifications to which manufactured goods must conform and the classes into which the products of agriculture and the extractive industries may be sorted.—*Definitions of Marketing Terms, Selected from Consolidated Report of the Committee on Definitions in "The National Marketing Review," Fall, 1935*.

# Order *with* Variety

# Is the Aim of the *New*

# *American Tentative Standard for Wrought-Iron and Wrought-Steel Pipe*



In 1886, the American Society of Mechanical Engineers published recommended dimensions for commercial pipe. These have been the basis for pipe dimensions in this country.

In recent years, there have been important developments in the manufacture of pipe. With these changes grew up a haphazard variety of pipe wall thicknesses for all sizes of pipe, causing unnecessary waste and expense.

Now, a committee representing manufacturers, users, safety organizations, and others interested in pipe, has selected from the present overlapping sizes and thicknesses, schedules of wall-pipe thicknesses covering a wide range of pressure-stress ratios.

**The American Tentative Standard  
Wrought-Iron and Wrought-Steel Pipe  
(B36.10-1935) . . . . . 50 cents**

gives the smallest practicable number of pipe wall thicknesses in each size of pipe to fill the diversified needs of the piping industry.

**Members of the American Standards Association are entitled to a discount of 20 per cent when ordering standards through the ASA office. Please deduct this discount when paying for standards.**

AMERICAN STANDARDS ASSOCIATION  
29 West 39 Street New York